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IDENTIFIERS	*CHOICE (Career Education Curriculum); *Marine Occupations

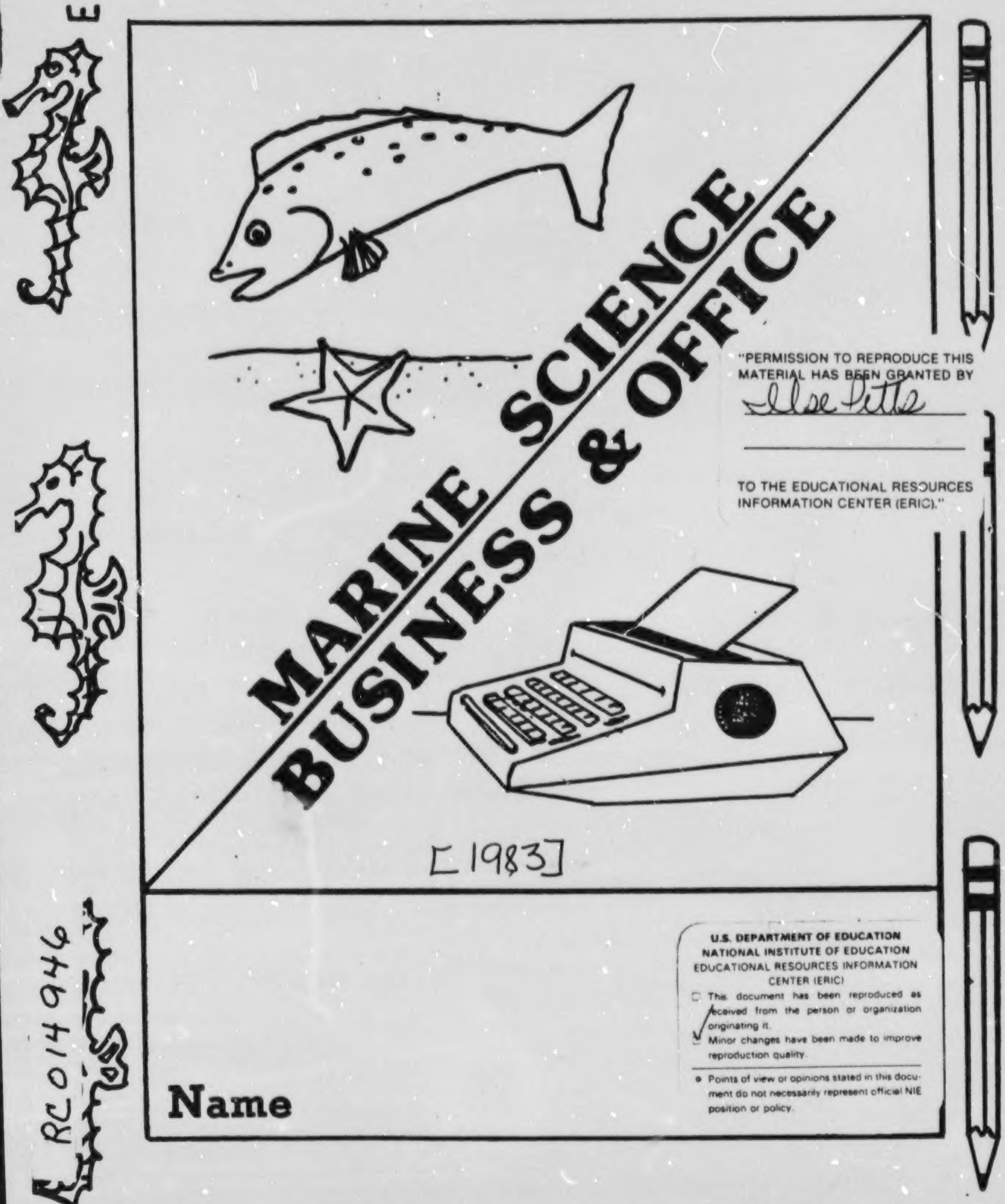
ABSTRACT

The documents aggregated here comprise the grade six unit of a career education curriculum designed for migrant students. Focusing on marine science, business, and office occupations, the combined teacher and student logs contain learning activities related to nine jobs: hydrographer, marine biologist, fish hatchery technician, boat builder, clerical worker, actuary, cashier, assistant bank manager, and computer operator. The logs include an orientation to the unit, an introduction and review sections for the nine jobs, vocabulary lists, ideas for further activities, space for notes, answers to the exercises and all the student activities and instructions for their use. The pre- and post-tests utilize pictures to measure the extent to which students understand the tools needed and the work performed in the 11 jobs. The illustrated student activities are intended to provide information about the nine jobs as well as to reinforce vocabulary, outlining, charting, graphing, spelling, logical validity, writing, classifying, and, particularly, mathematics skills. The activity folders are designed to increase students' self-awareness, job and role information, and decision making/goal attaining skills. (NQA)

ED248098

CHOICE: Challenging Options in Career Education

B7



MARINE SCIENCE
BUSINESS & OFFICE

[1983]

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RC014946

CHOICE development began in 1979 as a result of a study indicating that, whereas migrant children and middle class youth had similar career aspirations in the early grades, the career information, self awareness and decision making skills available to migrant children in the later primary school years were severely limited. Although the development and overall design of the curriculum was done with migrant youth in mind, use of the curriculum has been by migrant and non-migrant youth. Funding for the development and production of the materials has come from a variety of sources including CETA, the Career Incentive Act, and Migrant Section 143. There would appear to be an overall need for the type of information CHOICE provides on the part of both migrant and non-migrant youth. Therefore at present the intended audience would be all of our school age youth (including high school dropouts).

The CHOICE curriculum is built on the three strands of career education: (1) self awareness, (2) job and role information, and (3) decision-making/goal attaining and is designed on two levels. (The materials have been successfully used, however, in the upper primary and lower secondary in a non-absolute fashion crossing over the indicated level boundaries.)

The first level, Basic CHOICE, is for students in grades K through 6. Each unit, B1-B7, includes: (1) a pre- post-test, (2) a consumable student log, (3) a teacher log, and (4) a set of a minimum of 20 activity folders.

The pre- post-tests for B1-B4 are in picture format for the student with an accompanying teacher administration guide which indicates the exact wording for each question. The tests for B5-B7 are in a written format with an accompanying teacher administration guide which indicates directions and the exact wording for each question should the teacher decide to read the questions to the students. Answer keys for all tests are available and included with the basic set of CHOICE materials.

The consumable student log and accompanying teacher log contain the Job and Role information for each unit. Each unit, B1-B7, contains information from two of the U.S. Department of Labor defined career clusters. Each log covers at least five occupations of careers from each of the two clusters. The student log contains worksheets related to language arts skills using career related information. Worker stories in B1-B4 are found in the teacher logs and designed to be read to the students. Worker stories in B5-B7 are contained in both the student and teacher logs. The teacher logs contain all the student log pages in addition to the stories, for B1-B4, and additional suggested activities and career related vocabulary, for B5-B7. All the teacher logs contain suggested answers to the student exercises, but it is emphasized that any logical student answer is to be accepted.

The activity folders on each level are divided into three sets, one for each of the career education strands: (1) self awareness, (2) job and role information, and (3) decision-making/goal attaining. Each set of folders contains activities, stories, poems, and game-type activities all designed to help the student learn about career education and himself or herself.

The Advanced level of CHOICE materials consists of three texts. Again the organizational and developmental format was based on the three strands of career education and the 15 career clusters.

The first of the three texts is OCCUPATIONAL RESOURCES. This is the job and role information text. It contains 60 selections, four from each of the 15 career clusters, written in story, cartoon, interview, fact sheet, and poetry format. Each selection contains information on the tasks, skills, training and tools necessary to the career or occupation as well as the reading and mathematical requirements for the job. Selection of the careers covered was based on two factors. One, both entry level and advanced training level jobs were chosen within each cluster. Two, actual practicants of the job or occupation were interviewed as to their tasks, skills, training and tools. After the selections were written these same people were asked to review the stories for accuracy. OCCUPATIONAL RESOURCES has been rewritten on both the third and fifth grade reading levels as well as in the original high school reading level. The information and technical vocabulary has been maintained in the third and fifth grade reading levels but other parts of the stories, cartoons and interviews have been adapted to make reading easier.

The second text of the Advanced materials is CAREER NOTES. This volume contains the self awareness and decision-making/goal attaining information. It is designed to be used in individual sections depending on the need of the student. Again various formats have been used, including poetry, cartoon, and game activities to provide interest for the students. The sections included in CAREER NOTES are described in the Overview booklet.

The third text of the Advanced materials is MISSION INFORMATION. MISSION INFORMATION is a manual designed to accompany work exploration and experience programs. There are three sections; they are designed to be used independently of each other. The first is on interviewing a worker to obtain information about his/her job or career. The second is a "shadowing" guide to lead students through a worker shadow experience. The third section is a guide to a work experience program. Each section leads the student and teacher step by step through a discovery process. The student learns where and how to acquire information and how to organize his/her self knowledge and job knowledge in order to make effective decisions.

All of the Advanced materials are presently available in Spanish as well as in English. The Basic materials are in the process of being prepared in Spanish. The Spanish editions are NOT direct translations of the English, rather we have tried to produce a parallel version which makes sense in Spanish.

CHOICE curriculum materials were developed at Mid-Hudson Migrant Education Center and jointly funded through Career Education Incentive Act, CETA, Title IV-C, and Chapter I, Section 143 in cooperation with Ulster County BOCES, Putnam/Northern Westchester BOCES, and Mid-Hudson Migrant Education Center, New Paltz, New York.

CHOICE materials are available at cost through Auxiliary Campus Enterprises, care of CHOICE, P.O. Box 250, New Paltz, New York 12561.

Training and consultant services available.
For information, contact:

Connie Gans, Pat Hoppe, Elisa Ross, or Margaret Taylor
CHOICE
P.O. Box 250
New Paltz, New York 12561

Telephone: 914-257-2117

Marine Science/Business & Office

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Teacher's Log (including reduced reproductions of student pages)

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B7 TEACHERS' LOG

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PERFORMANCE OBJECTIVES

CURRICULUM CONTENT

B7 Marine Science Introduction

Vocabulary

marine*

*developed in text/activity

Extension

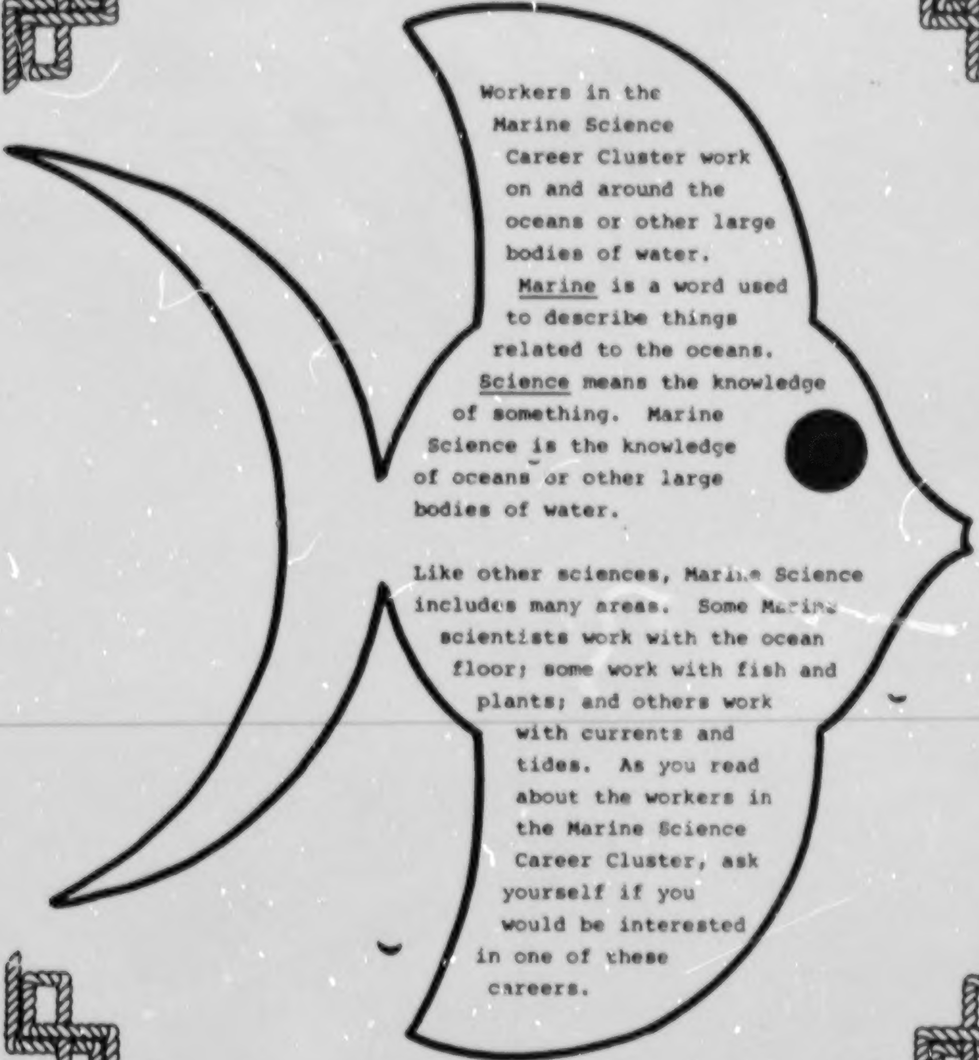
1. Display charts of oceans, seas.
2. Individual or group research projects on oceans, seas

Page 1

Student reads story or instructor reads story to student.

Notes

B-7 Marine Science



Workers in the Marine Science Career Cluster work on and around the oceans or other large bodies of water. Marine is a word used to describe things related to the oceans. Science means the knowledge of something. Marine Science is the knowledge of oceans or other large bodies of water.

Like other sciences, Marine Science includes many areas. Some Marine scientists work with the ocean floor; some work with fish and plants; and others work with currents and tides. As you read about the workers in the Marine Science Career Cluster, ask yourself if you would be interested in one of these careers.

Page 2

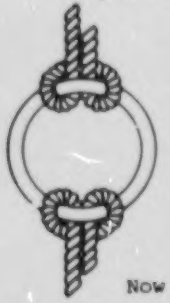
Student classifies marine organisms into "plant" and "animal" categories by using the dictionary.

Notes

Marine Plants and Animals

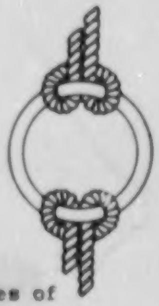
Marine is a word used to describe things having to do with the ocean. Marine animals are animals that live in the ocean. Marine plants grow in the ocean.

Below are some names of marine plants and animals. On the line beside each word, guess whether that word is the name of a plant or an animal. Write P if you think the word is the name of a plant, A if you think the word is the name of an animal.



Answers will vary

___ algae
___ coral
___ kelp
___ octopus
___ sea anemone
___ seahorse
___ seaweed
___ sponge
___ squid



Now find each word in your dictionary. Write the names of marine plants on the lines below the title Marine Plants and the names of animals on the lines beneath Marine Animals.

Marine Plants	Marine Animals
algae	coral
kelp	octopus
seaweed	sea anemone
	seahorse
	sponge
	squid

B7 Hydrographer

Vocabulary

aground
chart (nautical)*
coring device*
hydrographer*
sonograph
survey

*developed in text/activity

Extension

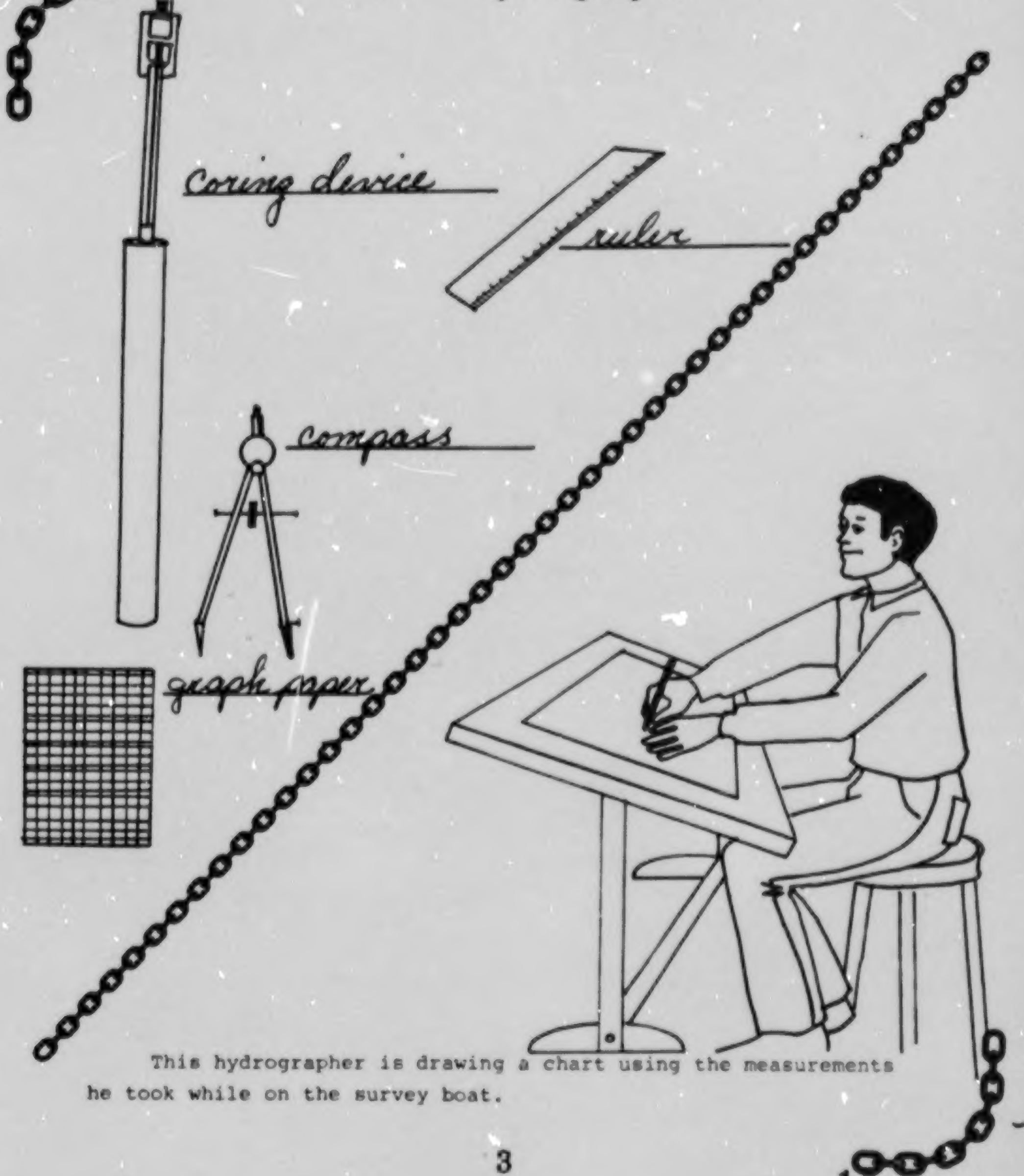
1. Display and discuss charts of local waterways.

Page 3

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after the story has been read.

Notes

B-7 Hydrographer



This hydrographer is drawing a chart using the measurements he took while on the survey boat.

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Pages 4-5

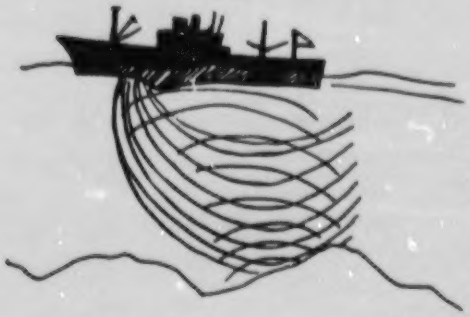
Student reads story or instructor reads story to student.

Notes

Hydrographer

Glen Harwood is a hydrographer for a survey company. He measures the depth of water and distances under the water. Using these measurements, Glen makes charts or maps of the area he is studying. Boaters and shipping companies use Glen's charts to decide the best course to take. Since Glen's charts show water depth, boaters and shippers can avoid shallow areas where they might run aground.

"I really enjoy being on the survey boat to take measurements," explained Glen. "That's the best part of my job. Of course, sometimes a storm comes up suddenly, and being on the water in a storm can be dangerous."



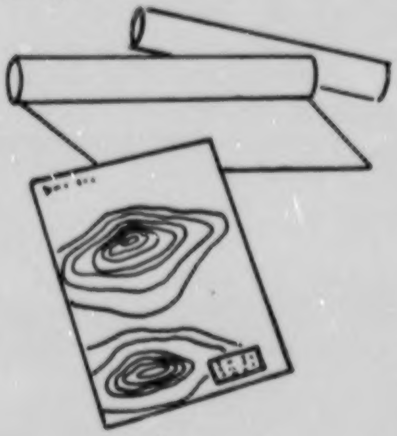
Glen uses measuring tools to measure the water depth. One of these tools is called a sonograph. This machine sends sounds down into the water. When the sounds hit the bottom, they bounce back and are recorded by the sonograph. The sonograph measures the time it takes for the sound to travel back to the boat. This tells Glen how far the sound traveled and therefore, the depth of the water.

Another tool that Glen often uses is called a coring device. This tool bores into the bottom of the body of water and removes a "core" of soil and rock. When Glen studies the core, he can tell what kind of soil and rock are underneath the water. This can give Glen clues to the type of minerals, like oil or gas, that could lie beneath the water.

When Glen has all of the measurements he needs, he works in an office to draw the charts of the area he has measured. Charts are maps of areas that are under water. He uses a drawing table, special graph paper, pens, compasses, rulers, and other drawing tools to make his charts. He has to be very careful to put his measurements on the charts exactly.

Glen began his training when he joined the Navy after high school. His tests showed that he had an ability for chartmaking. When his time in the Navy was over, Glen went to college to finish his course of study. He got college credit for all the things he learned in the Navy.

"I really have two jobs," explained Glen. "First I work on the survey boat, taking measurements. Then I use my measurements to draw charts. I enjoy having different things to do."



Pages 6-7

Student measures lines on a chart, uses a scale of ½" = 10' to convert measurements to depths represented.

Student uses a different scale of his/her choosing to draw a chart. (Use of graph paper will make this task somewhat easier.)

Notes

Measuring Depth

Glen Harwood is a hydrographer. A big part of Glen's job is measuring water depths. Glen uses a sonograph to measure water depths exactly. When he has all the measurements for the area he is charting, Glen makes a chart to show water depths.

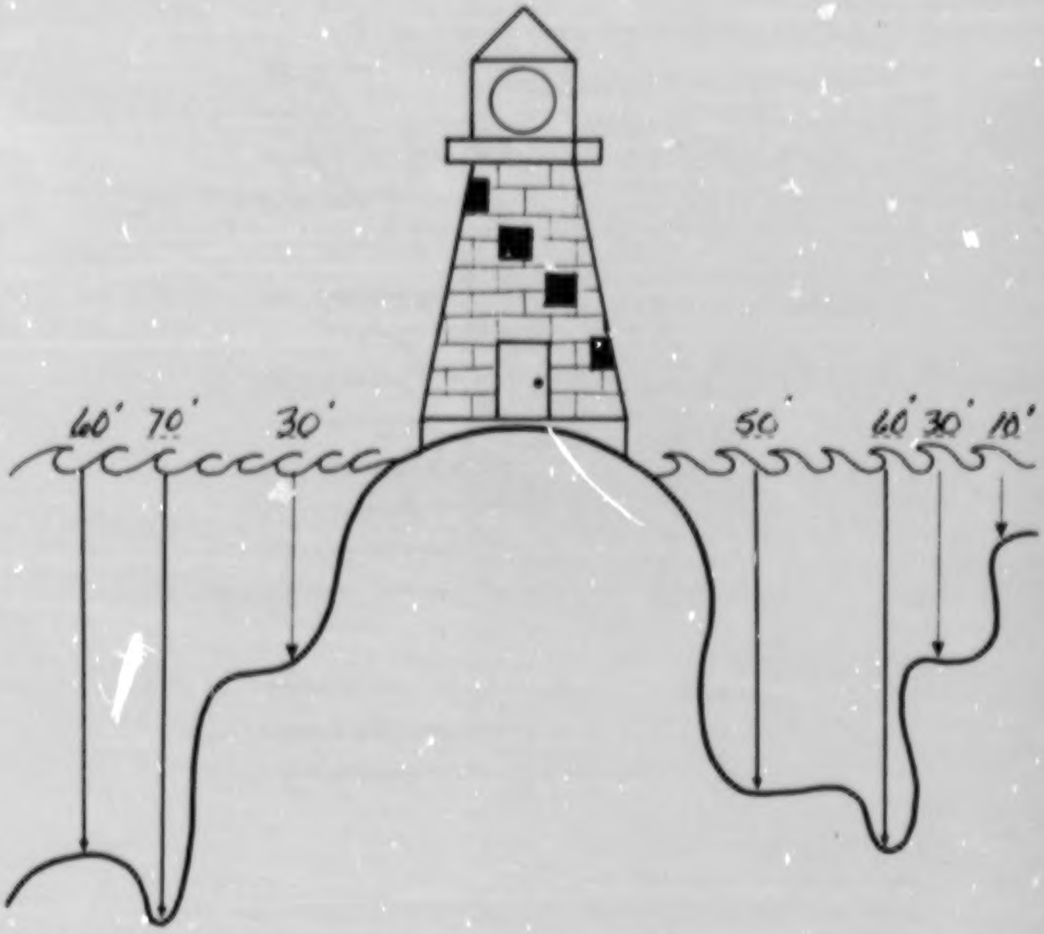
On the next page is a chart showing a cross section of a river Glen is charting. The arrows on the chart show places where Glen has used the sonograph to measure the depth of the water. Glen's chart uses a scale of ½" = 10ft. Measure each arrow. Then on the line above each arrow, write the depth of the water. Remember, every ½" is equal to 10 feet of water.

* *

Draw a map of your own using a different scale. Write the scale you are using on the chart. Have a classmate find depths on your chart.

Moon River Lighthouse

1/2" = 10'


60'
70'
30'
50'
60'
30'
10'

Page 8

Student uses given words/phrases to complete an outline.

Notes

Outline

Below is an outline telling about hydrographers. When the outline below is correctly done, it will tell about hydrographers. Finish the outline by writing the phrases on the right-hand side of your page in the correct blanks on the left-hand side of your page.

I. work places
  A. survey boat
  B. office

II. tools
  A. measuring
    1. coring device
    2. sonograph
    3. ruler
  B. drawing
    1. graph paper
    2. compass

III. training
  A. high school courses
  B. Navy
  C. college

survey boat
office
work places

graph paper
tools
ruler
drawing
compass
sonograph
measuring
coring device

college
high school courses
training
Navy

B7 Marine Biologist

Vocabulary

biologist*
dissect
laboratory
microscope
pollution
research
salinometer*
scalpel
Secchi dish*
vessel (boat)

*developed in text/activity

Extension

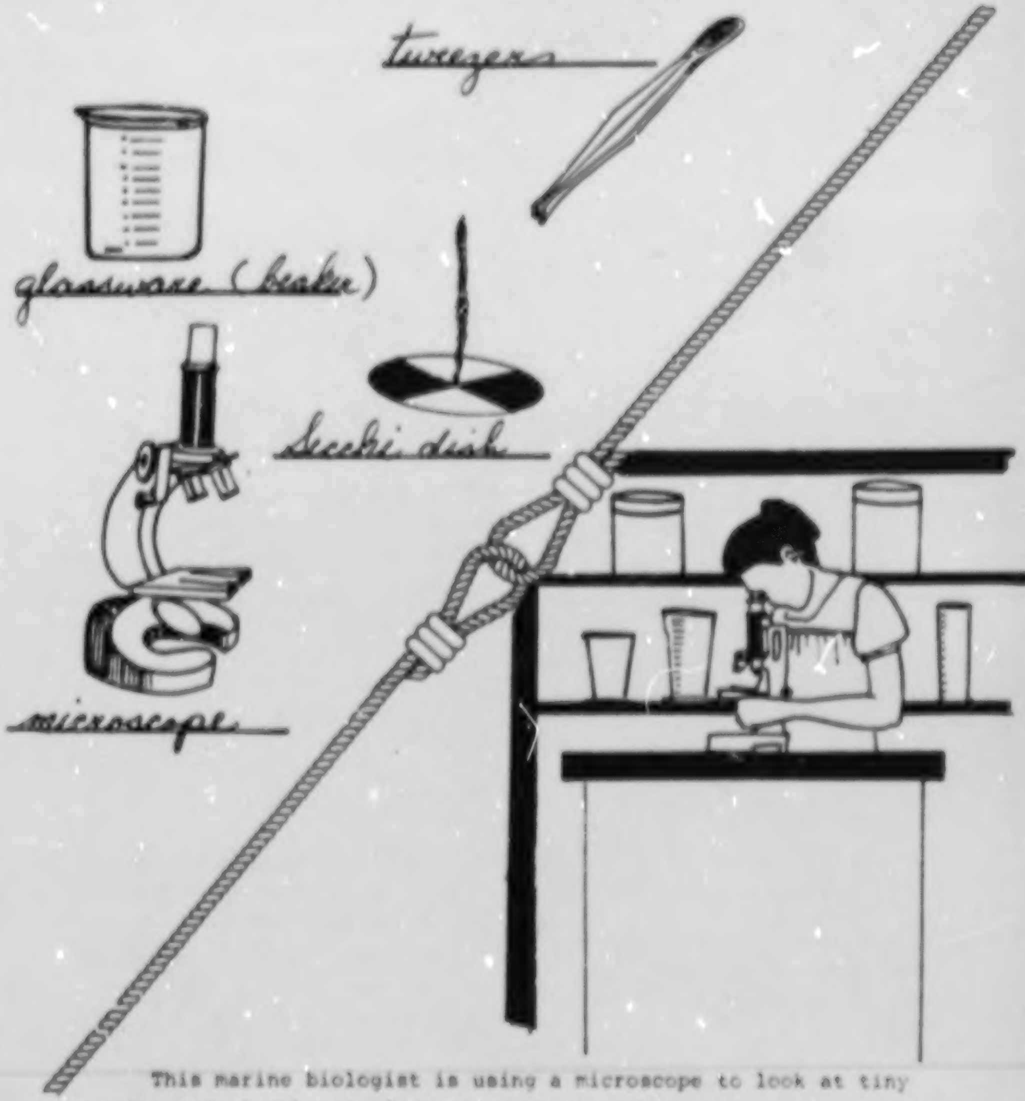
1. Contact local Environmental Conservation Office and schedule talk with marine or aquatic biologist.
2. Collage or bulletin board of marine life.
3. Visit an aquarium store.

Page 9

Complete in conjunction with vocabulary development or direct student to label tools/equipment after the story has been read.

Notes

B-7 Marine Biologist



This marine biologist is using a microscope to look at tiny marine animals that can't be seen by the naked eye.

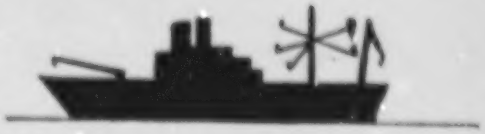
Pages 10-11

Student reads story or instructor reads story to student(s).

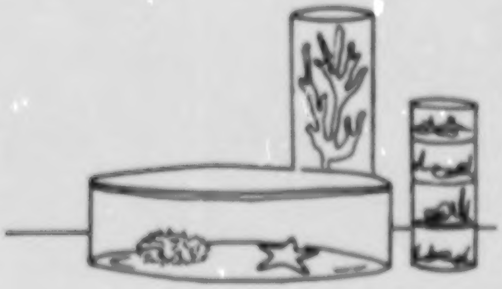
Notes

Marine Biologist

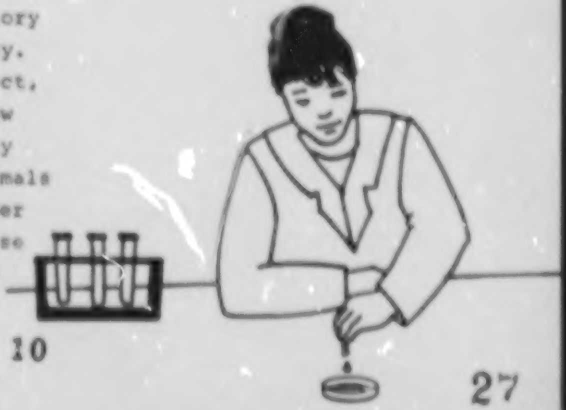
Karen Woods is a marine biologist. She works at a marine research station on the coast of Maine. Sometimes she works in a laboratory; sometimes she works "in the field." "In my case, working 'in the field' means working on a boat on the Atlantic Ocean," explained Karen. "The research vessel, or boat, is like a second home in the summertime. Sometimes I'm working aboard the vessel for a week or ten days at a time."

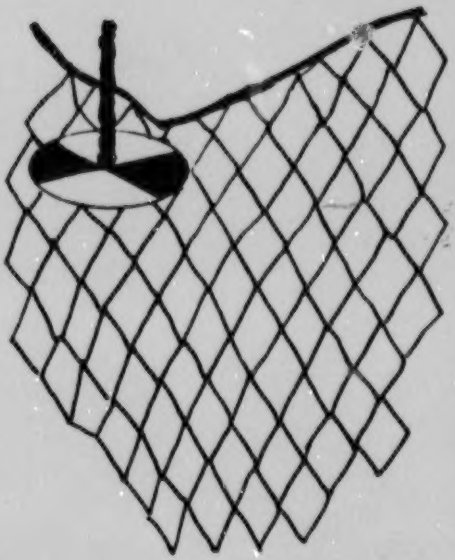


When Karen works on the research vessel, she collects plant and animal life from the ocean. The research vessel is "rigged" with many different kinds of nets for collecting plant and animal samples or specimens. She also measures the water's temperature, salt content, and cloudiness. The research vessel has a laboratory where specimens or samples can be studied and stored. There is also equipment that will keep sea animals alive for the biologist to observe at a later time.

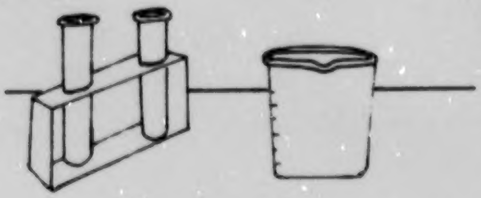


The marine biologist also works in a laboratory on shore. This laboratory has more equipment for detailed study. Here, the marine biologist may dissect, or take apart, sea animals to see how their organs work or what foods they eat. The biologist may test sea animals for sicknesses or the effects of water pollution. Some marine biologists use sea plants and animals to make drugs that will help people.





Karen uses many tools to do her work well. She knows how to use the different nets to collect different kinds of samples. She uses a Secchi dish to check the cloudiness of the water. This black and white disc is lowered into the water until it disappears. A recording thermometer tells Karen the water temperature at different depths. A salinometer measures the salt content of sea water; an oxygen meter measures the amount of oxygen in the water. When Karen knows these things, she is able to tell what kinds of animal and plant life may live in that part of the ocean.



In the onshore laboratory Karen works with laboratory equipment. She uses a microscope to look at tiny plants and animals that can't be seen with the naked eye. She uses a dissecting kit which has scalpels, or small knives, tweezers, and scissors. Karen uses a variety of glassware, chemicals and other lab equipment to do tests on plant and animal samples or specimens.

Karen went to college for four years to get her first degree in biology. She took many courses in science and math. She went on to graduate school to get a Master's Degree in Marine Biology. Her many years of college prepared Karen for an exciting, interesting career.

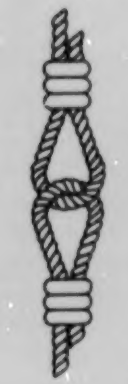
Pages 12-13

Student uses temperature graph to answer multiple choice and true/false questions.

Notes

Temperature Chart

A recording thermometer measures the water temperature at different depths. The chart on the following page is a line graph showing water temperatures from a bay that Karen is surveying. Use the graph to answer the questions below.



1. What temperature was the water of Moonlight Bay at 55'?

   a. 68° c. 30°
   [✓ b.] 54° d. 80°

2. At what depth would you find water of 64°?

   a. 15' c. 45'
   [✓ b.] 30' d. 70'

3. Within what depth did the water temperature drop the quickest?

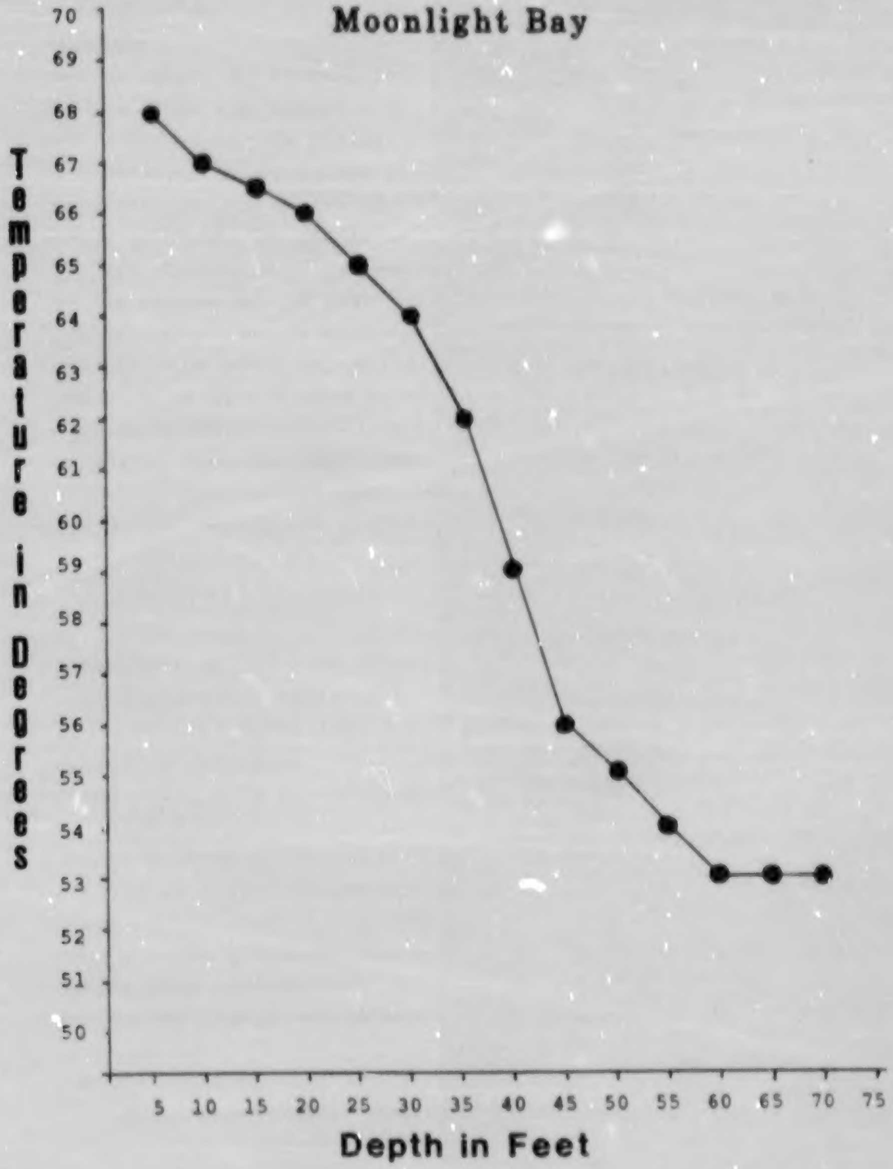
   [✓ a.] 35'-40' c. 5'-10'
   b. 65'-70' d. 25'-30'

4. Within what depth did the water temperature drop the least?

   a. 5'-15' c. 55'-60'
   b. 30'-40' [✓ d.] 60'-70'

5. Underline the true statements.

   a. Water near the top of the bay is warmer.
   b. The deeper the water, the warmer the temperature.
   c. The depth of the water has nothing to do with the temperature.
   d. The shallower the water, the warmer the water.


Moonlight Bay
Temperature in Degrees
70
69
68
67
66
65
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Depth in Feet

Page 14

Student reads selections and underlines the sentence which best represents the main idea in each selection.

Notes

Main Idea

In each paragraph, underline the sentence that best tells the main idea of that paragraph.

1. ~~Marine biologists usually work in two different places~~. They work "in the field" on research vessels, or boats, to collect samples of marine plants and animals. Some of the samples, or specimens, are preserved in chemicals. Some specimens are kept alive in tanks. When the specimens are collected, the marine biologist works at a laboratory on shore to do tests on the specimens.

2. A salinometer is one of the tools used by marine biologists. It measures the amount of salt in the water. A Secchi dish is used to measure the cloudiness of the water. A recording thermometer measures the temperature of the water at different depths. ~~Marine biologists use many tools to get the information they need~~.

3. Marine biologists use Secchi dishes to measure the cloudiness of water. ~~The use of the Secchi dish is a simple matter~~. The Secchi dish is a disc that is painted with black and white sections. A rope is attatched to the center of the disc. The disc is lowered into the water until it cannot be seen. By measuring the rope, the biologists can tell how far into the water the Secchi dish was lowered. The farther down the Secchi dish can be seen, the clearer the water.

4. Taking science and math courses in high school is the first step toward becoming a marine biologist. In college, more science and math courses need to be taken. Some college courses may also have assigned field work. The student may actually work with an experienced marine biologist. The best jobs in marine science are given to those who go on to graduate school after college. ~~Becoming a marine biologist takes several years of education after high school and a lot of studying~~.

B7 Fish Hatchery Technician

Vocabulary

algae
automatic
hatchery*
mortality*
responsibility
sediment
technician*

*developed in text/activity

Extension

1. Visit a fish hatchery, if possible.

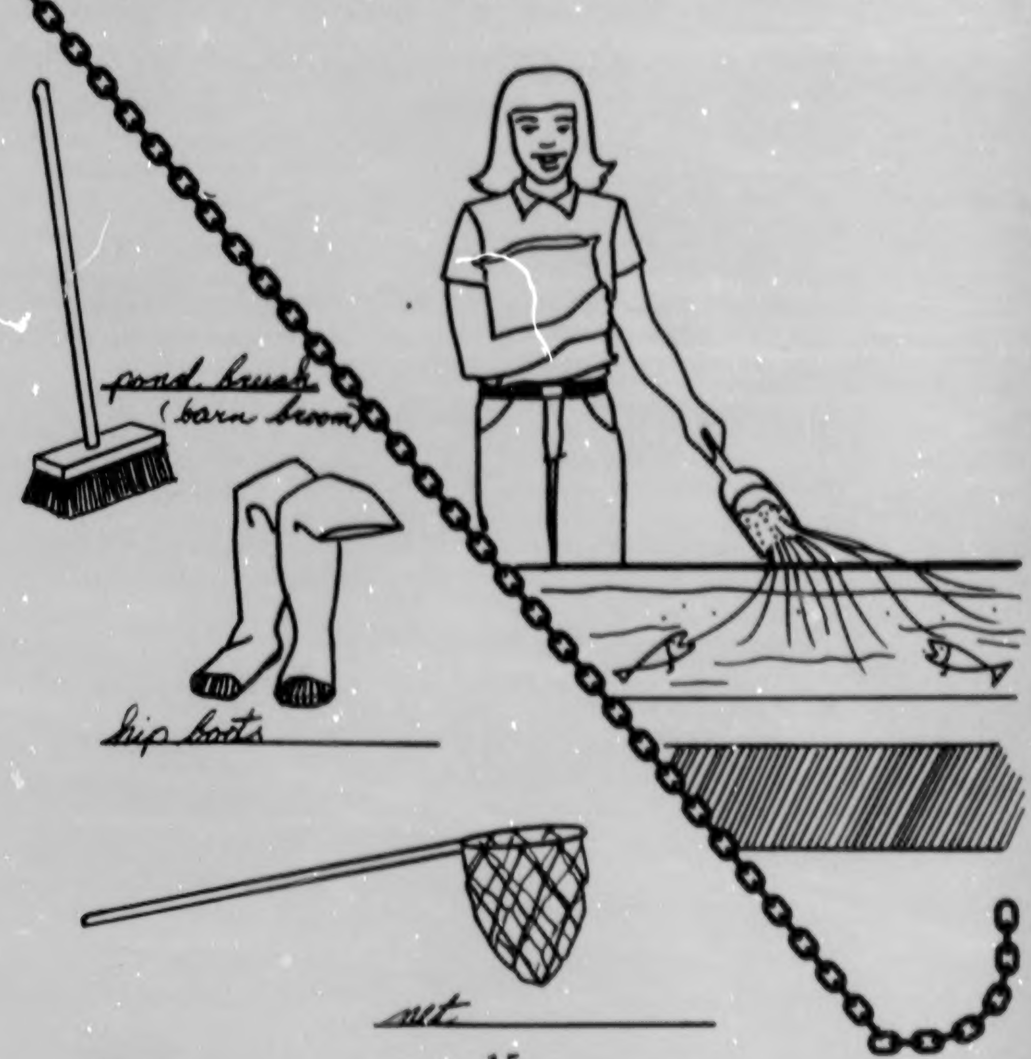
Page 15

Complete in conjunction with vocabulary development or direct student to label tools/ equipment after reading the story.

Notes

B-7 Fish Hatchery Technician

This fish hatchery technician is feeding fish with an exact amount of prepared fish food. Different kinds of fish are fed different amounts of different food.



Pages 16-17

Student reads story or instructor reads story to student(s).

Notes

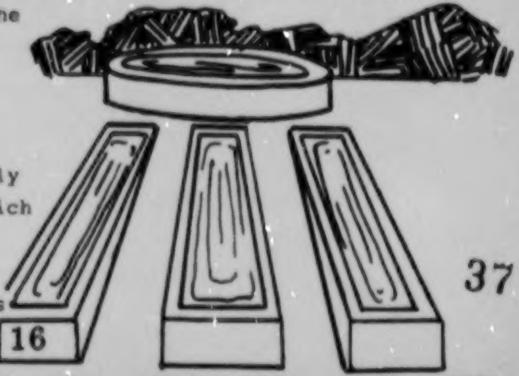
Fish Hatchery Technician

Molly Mason works in a state-operated fish hatchery. This hatchery was built to raise fish. When the fish are old enough, they are put into lakes and streams.

As a fish hatchery technician, Molly does many different things. Her most important responsibility is to care for the fish. "Most people don't understand about raising fish," explained Molly. "You don't just throw them a few worms and watch them grow."

While the fish are growing, they live in ponds. Fresh water runs between the ponds constantly, so the fish have fresh water all of the time. Screens separate the ponds, so that each group of fish stays in its own pond. The ponds have to be cleaned daily to help the fish stay healthy. The screens are brushed daily to remove algae and other material which clings to the screens. Each morning dead fish are taken from the ponds. Then hatchery technicians and laborers

Fish are fed a special mixture of food which comes to the hatchery in bags. Different kinds of fish need different kinds of food. Small fish need finely ground food; large fish need a coarser food. Some fish ponds have automatic feeders installed at their edges. These feeders are filled with food, usually once a day. At certain times during the day, the automatic feeders are turned on. The feeders throw the food across the surface of the ponds for the fish to eat. In ponds where there are no automatic feeders, hatchery workers use a scoop to throw the food to the fish. In all cases each pond of fish is given a carefully measured serving of food, several times a day.



put on hip boots and go into the ponds. They use long handled barn brooms to sweep sediment out the ends of the ponds. When fish do become sick, technicians must treat the pond with chemicals to help the fish become healthy again.

When the fish are ready to be put into streams and lakes, hatchery technicians use long handled nets to put the fish into tanks on special trucks. The fish hatchery technicians drive the trucks to the place where the fish will be unloaded. Molly also supervises work on the hatchery grounds and buildings. Since people visit the hatchery every day, the buildings and lawns must look well-kept. Sometimes Molly takes high school and college students on tours through the hatchery. She tells them about raising fish and explains her job at the hatchery.

Molly got her training in a two-year fish and wildlife technician program at college. She took many science courses. "I'm glad I took so many math courses," explained Molly. "I use math every day to figure out growth rates of the fish, how much feed we have on hand, and how many fish are in each pond." When Molly finished college, she took an exam given by the state. As she gets more experience, she can take tests for better paying jobs with more duties.

Pages 18-19

Student reads chart on page 19 to answer questions on page 18.

Notes

Reading Charts

Answer the questions below by looking at the charts on the following page.

1. What kind of fish live in pond #2? coho salmon
   pond #4? rainbow trout, pond #7? brown trout.

2. In which ponds would you find rainbow trout?
   4 and 5

3. How much feed was fed to pond #3 in the week of April 1 to April 7? 72 lbs.

4. How much feed was fed to all of the fish on April 5?
   235 lbs.

5. How much feed was fed to pond #6 between April 1 and May 12? 430 lbs

6. The chart of mortality rate shows the number of dead fish taken from each pond each morning. On April 1 how many dead fish were taken from pond #2?
   2, pond #3? 4, pond #9?
   7

7. On which day was the mortality the highest in pond #9?
   April 10, pond #1? April 12

8. Which pond had the highest mortality rate on April 5?
   pond 3, April 10? pond 7

9. Which pond had the highest mortality rate for April 1-12?
   pond 9

Smallfry Hatchery Data Chart
Feeding Record

Weight in Pounds

Pond No.	Fish Type	April 1	2	3	4	5	6	7	8	9	10	11	12
1	Coho salmon	38	38	38	38	38	40	40	40	40	40	43	43
2	Coho salmon	25	25	27	27	27	27	27	27	27	29	29	29
3	Chinook salmon	10	10	10	10	10	11	11	11	12	12	12	12
4	Rainbow trout	45	45	45	48	48	48	48	48	48	48	48	48
5	Rainbow trout	45	45	45	45	48	48	48	48	48	48	48	48
6	Brown trout	32	32	35	35	35	35	37	37	37	37	39	39
7	Brown trout	18	18	18	18	18	18	18	18	21	21	21	21
8	Brown trout	4	4	4	4	4	4	4	4	4	4	5	5
9	Brook trout	6	6	7	7	[illegible]	7	7	7	7	7	7	7

Mortality Rate

Pond No.	Fish Type	April 1	2	3	4	5	6	7	8	9	10	11	12
1	Coho salmon	3	0	2	0	1	1	2	1	3	4	4	6
2	Coho salmon	2	1	4	4	4	1	2	1	4	0	2	1
3	Chinook salmon	4	3	6	3	10	0	0	2	1	3	5	4
4	Rainbow trout	6	2	1	1	3	6	4	0	0	2	3	2
5	Rainbow trout	0	4	9	2	2	1	2	4	6	3	0	3
6	Brown trout	1	1	0	6	4	4	5	6	2	0	4	3
7	Brown trout	4	7	3	4	3	8	9	10	8	7	3	2
8	Brown trout	3	0	4	7	6	2	1	4	0	0	3	4
9	Brook trout	7	8	8	8	9	7	10	14	18	22	20	18

Pages 20-21

Student uses information on page 20 to solve math problems on page 21. Depending on student ability, these problems may be done in small groups or as a class.

Notes

Counting by Weight

Fish hatchery technicians use math daily. One way they use math is in counting fish by weight. This is done when fish are being loaded to be stocked in a lake or stream.

If the technicians need to stock 75,000 young salmon, counting out 75,000 small fish would take hours and hours. Here's how the technicians count them more quickly.

1. A net full of fish is taken from the pond.
2. The net and the fish are weighed.
3. The weight of the net is subtracted from the weight of the net and the fish. This tells the weight of the fish.
4. The fish in this netful are counted.
5. The number of fish is divided by the number of pounds. This tells the number of fish in each pound of fish.
6. Now the technician can tell how many pounds of fish he will need to get 75,000 fish.
7. Each netful of fish is weighed and loaded until the technician has reached the number of fish he needs.

Counting by Weight

Complete the problems below. Review the steps for counting by weight if you need to.

The fish weighed 6/lb. (6 fish = 1 pound of fish). How many fish would there be in 14 pounds of fish?

84 fish.

The technician weighed the netful of fish. The total weight was 33.8 pounds. The net alone weighed 2.4 pounds. What was the weight of the fish?

31.4 lbs.

The net held 20 pounds of fish. There were 100 fish in the net. How many of these fish make a pound of fish?

5 fish/lb

The fish weighed 8/lb. How much did each fish weigh in ounces? (Hint: 1 pound = 16 oz.)

2 oz.

The technician weighed 200 pounds of fish into the tank. The fish were 62/lb. in weight. How many fish were in the tank?

12,400 fish

Page 22

Student unscrambles measurement words and writes the appropriate abbreviation for each.

Notes

Abbreviations

Hatchery technicians use measurement every day. They measure fish sizes, the number of fish in a pond, the amount of food to feed each group of fish, and the amount of water flowing through the ponds.

Below is a list of measurement words. The letters in the words are scrambled. Unscramble the letters to correctly spell the measurement words. Then choose the correct abbreviation for each measurement from the abbreviation box. Write the abbreviation for each measurement on the line beside the correctly spelled word.

chin inch in.

tofo foot ft.

dray yard yd.

lime mile mi.

treem meter m.

meectinert centimeter cm.

nipt pint pt.

turaq quart qt.

nolgla gallon ga.

triel liter l.

oncue ounce oz.

upnod pound lb.

Abbreviation Bank

mi.
lb.
ft.
in.
qt.
pt.
oz.
l.
ga.
yd.
m.
cm.

B7 Boat Builder

Vocabulary

caulk	fiberglass*
combination	respirator
	variety

*developed in text/activity

Extension

1. Build boats from : popsicle sticks
   papier-maché
   origami paper
2. Collage or bulletin board of boats

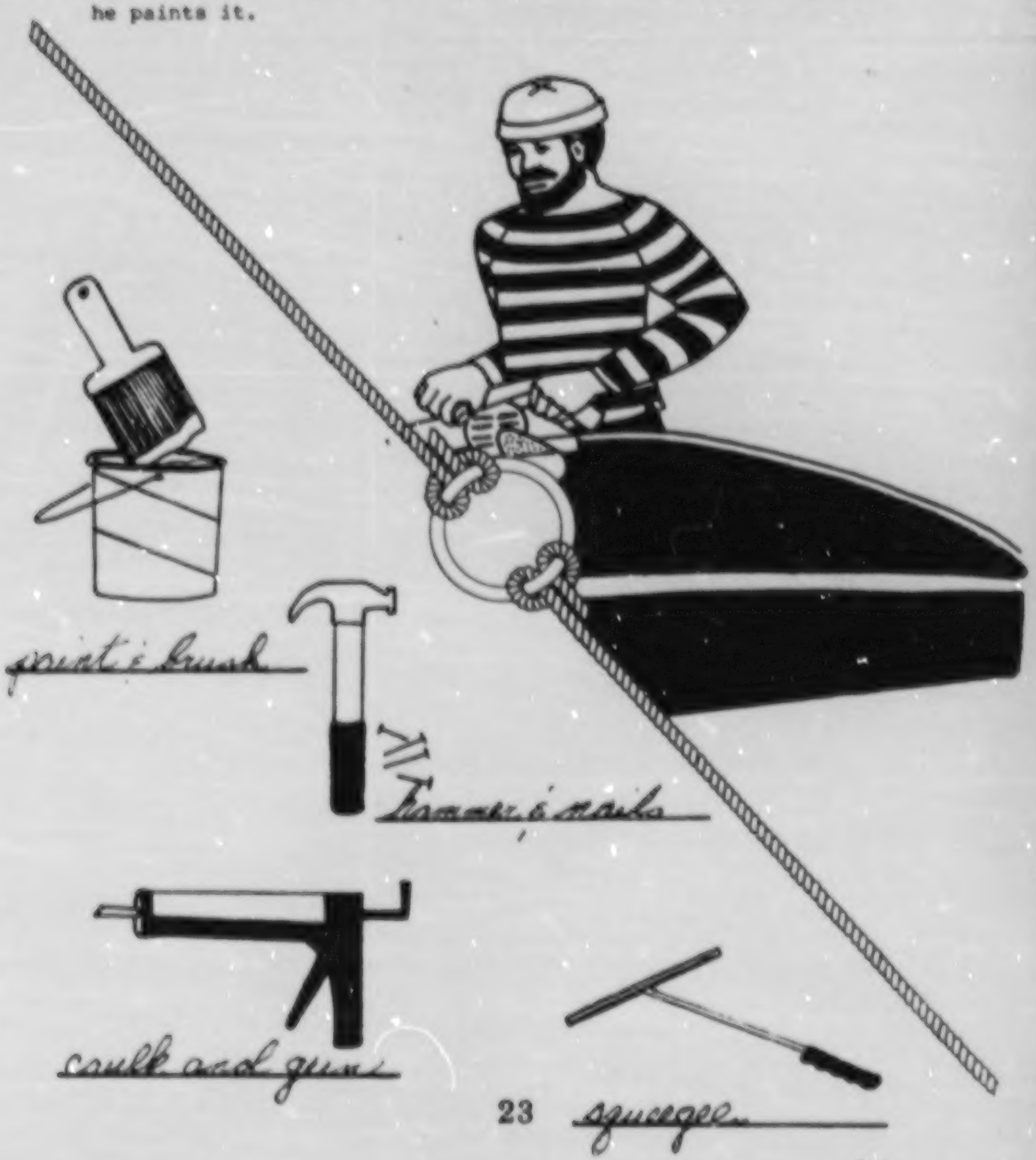
Page 23

Complete in conjunction with vocabulary development or direct students to label tools/equipment after reading story.

Notes

B-7 Boat Builder

This boat builder is sanding the surface of the boat before he paints it.


paint c̄ brush
hammer c̄ nails
caulk and gun
squeegee

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Page 24

Student reads story or instructor reads story to student(s).

Notes

Boat Builder

Boat builders use a variety of materials to build different kinds of boats. Boats come in all sizes. Some have sails; some have motors; and some have paddles or oars. Some are built of wood; some of fiberglass; and others are made of metal. Other than military and freight ships, most are made of wood, fiberglass, or a combination of wood and fiberglass.

When building a wooden boat, boat builders use the same tools that carpenters use. Saws are used to cut the wood to length. Nails and sometimes special glues hold the wood in place. A putty-like substance called caulk is smeared between the boards of the boat to prevent water from leaking in. The boards are sanded smooth before paint is applied to the boat. A wet fiberglass cloth or mat is placed over the mold. Chemicals are sprayed onto the mat to make it harden. Then layer upon layer of fiberglass mat is added until the boat is strong enough to hold its shape. Sometimes pieces of wood are sandwiched between the layers of fiberglass for added strength.

After each layer of fiberglass mat is added, the boat builder uses a squeegee to force out air bubbles. Bubbles would weaken the boat. When the fiberglass is dry, the "boat" is removed from the mold, sanded smooth, and painted.

Since the fiberglass is made with chemicals, boat builders use respirators when they are applying fiberglass. The respirators fit over the builders' noses and mouths so they don't breathe the chemicals. In large shipyards, boat builders wear hard hats and heavy boots to protect themselves.

No special training is needed to become a boat builder. High school shop courses are helpful, but most of the training is on the job. Trainees begin by helping an experienced boat builder. As trainees gain experience, they are given more difficult jobs to do. Eventually, trainees can work on boats alone, or train new employees.

Page 25

Student identifies word pairs that are synonyms.

Student writes synonyms for given words.

Notes

Synonyms

Boaters use special words for everyday things. For instance, the kitchen on a boat is called a galley; the bathroom is called the head; and the wall is called a bulkhead.

Words that mean the same are called synonyms. Circle the word pairs below that are synonyms.

[✓ absent-gone]
[✓ accomplish-do]
snore-breathe
sling-shot
[✓ beckon-call]
tuna-fish
[✓ carton-box]
thicket-grass
[✓ powerful-strong]

location-find
[✓ comic-funny]
soar-sink
[✓ demolish-wreck]
disguise-face
[✓ false-untrue]
[✓ impolite-rude]
cling-peach
[✓ revolver-gun]

* *

Write a synonym for each of the words below. You may use a dictionary to help you.

astonish surprise
vacant empty
boulder rock
desire want
distant far

entire whole
folk people
glisten shine
haul pull
inquire ask

Page 26

Student reads selections and crosses out the irrelevant sentence in each selection.

Notes

Logical Validity

In each paragraph, draw a line through the sentence which does not belong.

He was building a boat from wood. First, he cut boards to the length he needed to use. Then he used glue and nails to hold the boards together. ~~His son liked to play with toy boats.~~ When all of the boards were assembled, he used a putty knife to spread caulk over the cracks. He sanded the boat smooth after the caulk had dried. He painted the boat bright yellow.

Fiberglass is a man-made material that is valued for its strength and resistance to weather. Fiberglass is made by spinning fine threads of glass. These threads can be woven together to make a very strong cloth or "mat" of fiberglass. It is this "mat" that is used to build boats. The mat is pressed onto the boat "form." Then chemicals are sprayed onto the "mats." These chemicals cause the "mat" to harden in the shape of the boat "form." ~~Some chemicals are used to kill weeds.~~

Ben was always good at his shop courses. He especially liked woodworking. When he graduated from high school, he knew he wanted to work in carpentry. ~~He just barely passed his world history course.~~ After applying for several jobs, Ben was employed at a boatyard. He began helping an experienced boat builder. After a few weeks, he was able to do some jobs by himself.

Boat builders use many of the tools that carpenters use. ~~Many carpenters belong to a union.~~ Hammers, saws, drills and sanders are some of the tools used by boat builders. Boat builders also use putty knives, scrapers and levels.

B7 Commercial Diver

Vocabulary

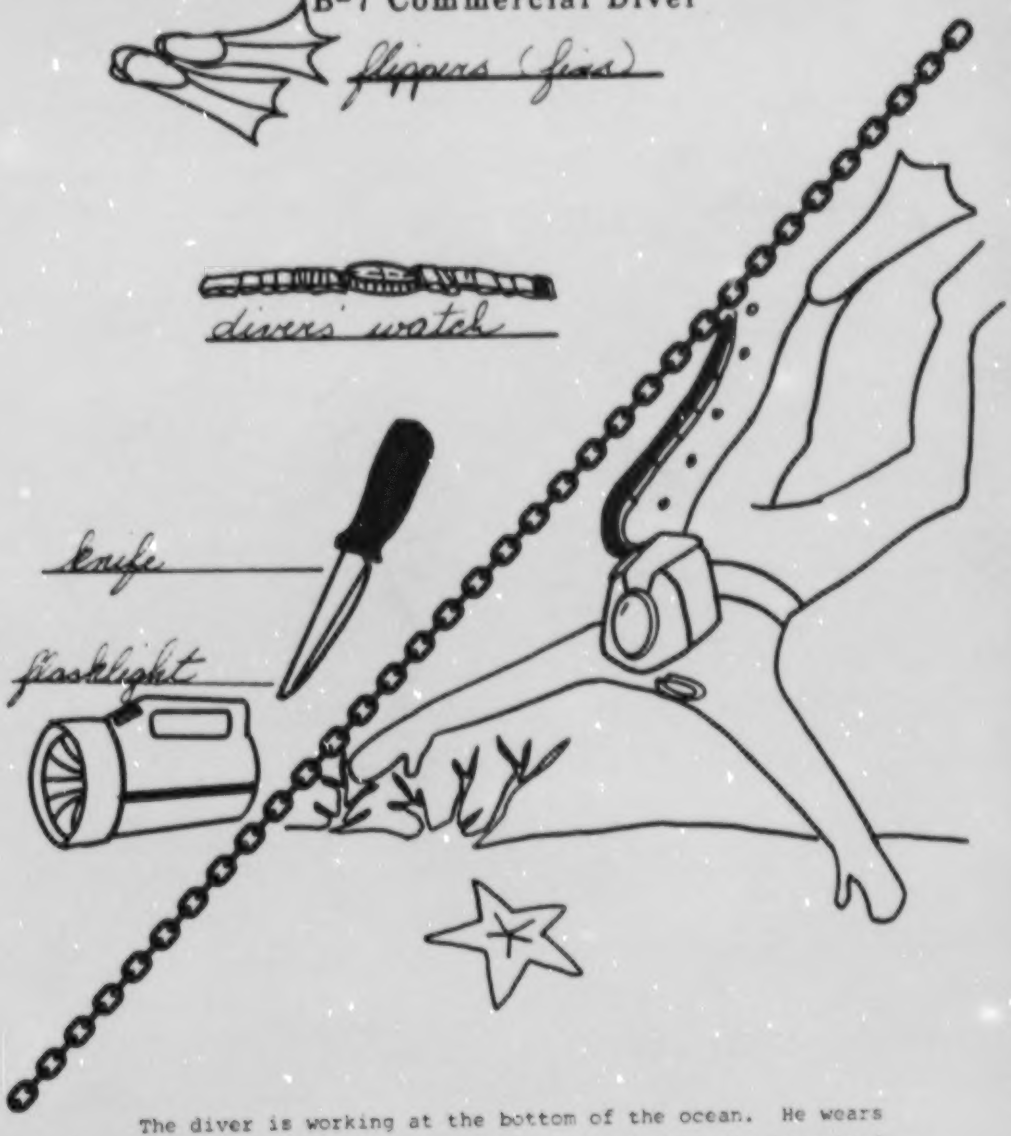
commercial	mouthpiece
gauge	pressurize
	victim

Page 27

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading story.

Notes

B-7 Commercial Diver


flippers (fins)
divers' watch
knife
flashlight

The diver is working at the bottom of the ocean. He wears a special suit and a helmet to protect his body. Air is pumped into the helmet through a hose.

Pages 28-29

Student reads story or instructor reads story to student(s).

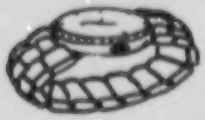
Notes

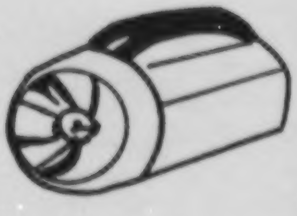
Commercial divers use special equipment that allows them to work under water in oceans, lakes, and rivers. Some divers work to find victims of boating and swimming accidents. Some divers work to build structures for oil or gas wells. Other divers go under water to find sunken ships and to recover the goods that sank with the ships.

Some divers wear air tanks on their backs. These tanks have hoses and mouthpieces. When the divers put the mouthpieces in their mouths, they can breathe the air from the tanks. These divers don't always wear helmets. Sometimes, they wear rubber masks that cover their eyes and noses. The masks have clear fronts, so the divers can see.

Commercial Diver

Commercial divers wear special suits to protect their bodies from cold water. If divers need to go into very deep water, they wear suits and helmets that are pressurized. This means that the air inside the suit is the same pressure as the air above the water. The divers' helmets have hoses that run all the way to the boat from which they work. Air is pumped through the hoses so that the divers can breathe in their metal or fiberglass helmets.





Besides suits, tanks, helmets, and masks, divers use other equipment to make their jobs safer and easier. They wear flippers on their feet to help them to move through the water more quickly. They wear special watches to help them keep track of time (it is very important that divers don't stay under water for too long). They use depth gauges to tell them how far under water they are (going too deep can endanger the divers' lives). Divers use flashlights that work under water to help them see. Some divers use underwater cameras to take pictures of things beneath the water. Most divers wear weighted belts to help them sink to the bottom. They carry knives to cut their hoses free if they get tangled in seaweed.

The Y.M.C.A. gives training courses in scuba diving. There are also Divers' Institutes which hold six month courses to train divers. However, divers must also know about the work they will do when they are diving. For instance, a diver who is building an oil "rig" must know abou using torches to cut and weld metal while in the water.

Commercial diving can be an exciting career. At times, however, it can be very dangerous.

Page 30

Student matches acronyms to phrase they represent.

Notes

Acronyms

Some divers use scuba equipment when they dive. Scuba is a short way of saying self contained underwater breathing apparatus. A word like scuba, which is made from the first letters of other words is called an acronym (ak' rō nim). Scuba is an acronym for "self contained underwater breathing apparatus."

On the line beside each of the phrases below, write the acronym which stands for that phrase. Acronyms are listed in the box on the right hand side of your page.

NASA	National Aeronautics & Space Administration	SUNY
NATO	North Atlantic Treaty Organization	SALT
SALT	Strategic Arms Limitation Talks	NOW
AWOL	Absent Without Leave	NASA
TIP	To Insure Promptness	MASH
MASH	Mobile Army Surgical Hospital	AWOL
NOW	National Organization of Women	SAM
SUNY	State University of New York	TIP
SAM	Surface to Air Missile	DEWS
DEWS	Distant Early Warning System	NATO

* *

Write acronyms for the following titles:

United Nations International Children's Emergency Fund UNICEF

Congress of Racial Equality CORE

South East Asia Treaty Organization SEATO

Women's Army Corps WAC

Strategic Air Command SAC

Page 31

Student unscrambles words to spell divers' equipment and matches each piece of equipment to its use.

Notes

Equipment Scramble

Unscramble the words below to spell the names of divers' tools and equipment. Write the correctly spelled word on the line on the right hand side of the scrambled word. Then find the phrase that best describes that tool and write the phrase number on the line to the left of the scrambled word.

7	theelm	helmet	1. gives light under water
4	shoe	hose	2. cuts underwater weeds from hoses
3	ari kant	air tank	3. holds a supply of air
10	prifspel	flippers	4. carries air from the surface to the diver
6	drevis twach	divers watch	5. helps the diver sink to the bottom
5	thigewe blet	weight belt	6. keeps time under water
2	efink	knife	7. protects diver's head
8	thedp uggae	depth gauge	8. tells how far down the diver is
9	meacra	camera	9. takes pictures under water
1	shlafthilg	flashlight	10. help divers move quickly through the water

B7 Marine Science Review

Page 32

Student identifies marine science words in word search puzzle.

Notes

Marine Science Word Search

Words having to do with the Marine Science Career Cluster are hidden in the puzzle on the following page. The words are written from left to right, top to bottom, right to left and bottom to top. See how many words you can circle before checking the list below.

air tank
boat builder
broom
caulk
commercial diver
compass
coring device
diving suit
drafting table
fiberglass
fish hatchery
flippers
helmet
hose
hydrographer

marine biologist
microscope
net
pond
salinometer
sander
screen
Secchi dish
sonograph
squeegee
technician
thermometer
truck

S D T E N A S A L I N O M E T E R
A N E O D C M H Q S Q U E E G E E
N O H Y D R O G R A P H E R I J V
D P N M R E T E M O M R E H T C I
E B F O A G E P O C S O R C I M D
R B N O F I S H H A T C H E R Y L
T P E R T E C H N I C I A N D F A
E A E B I D I V I N G S U I T I I
M A R I N E B I O L O G I S T B C
L E C L G H P A R G O N O S K E R
E D S N T O V K L U A G R A S R E
H M K N A T R I A U T L C P X G M
O E Q G B S R E P P I L F M U L M
S F Z P L W K C U R T H I O Y A O
E F X S E C C H I D I S H C B S C
Y C O R I N G D E V I C E W J S V
R Z R E D L I U B T A O B A S K T

Page 34

Student writes story about favorite worker in Marine Science Career Cluster.

Notes

Write a Story

Write a story about your favorite worker in the Marine Science Caree Cluster. Be sure to include why you think you would like to have this career.

B7 Business and Office Introduction

Vocabulary

depending
information
organize
setting
transfer
vary

Extension

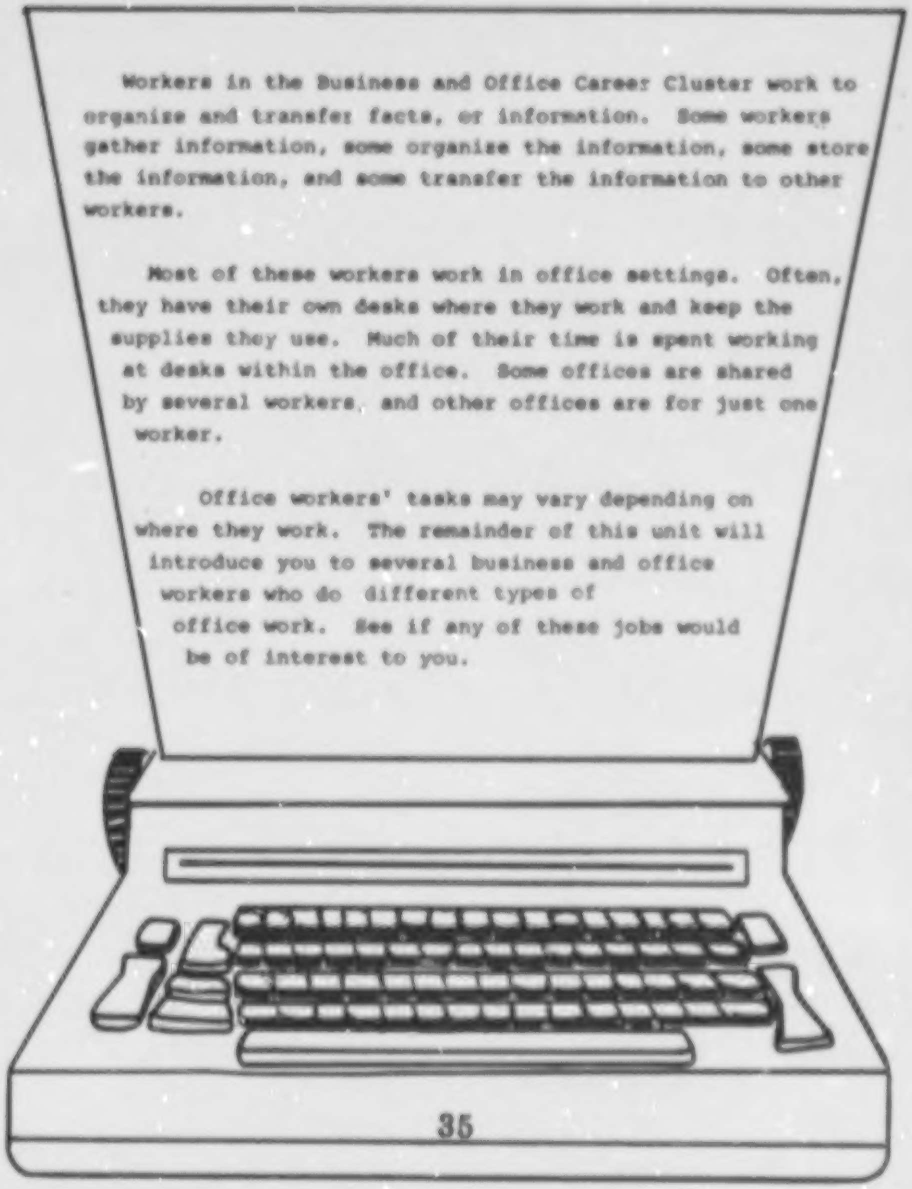
1. Business and Office bulletin board.
2. Business and Office collage.
3. Visit offices in local buildings.

Page 35

Student reads story or instructor reads story to student(s).

Notes

Business and Office



Workers in the Business and Office Career Cluster work to organize and transfer facts, or information. Some workers gather information, some organize the information, some store the information, and some transfer the information to other workers.

Most of these workers work in office settings. Often, they have their own desks where they work and keep the supplies they use. Much of their time is spent working at desks within the office. Some offices are shared by several workers, and other offices are for just one worker.

Office workers' tasks may vary depending on where they work. The remainder of this unit will introduce you to several business and office workers who do different types of office work. See if any of these jobs would be of interest to you.

Page 36

Student identifies workers who spend most of their work time in office settings.

Student identifies office equipment and supplies.

Notes

Classifying

Business and office workers spend most of their work times in offices. Below is a list of workers. Draw a circle around the workers who spend most of their work time in offices.

[✓ secretary]
scuba diver
[✓ hotel clerk]
[✓ typist]
construction worker

[✓ bank teller]
[✓ school secretary]
mason
[✓ postal clerk]
waitress

* *

Below is a list of tools and supplies. Draw a circle around those tools and supplies found in offices.

[✓ typewriter]
shovel
crane
[✓ copier]
[✓ pencil]

[✓ desk]
rake
[✓ paper clips]
[✓ stapler]
microscope

[✓ adding machine]
cupcake pan
[✓ tape dispenser]
[✓ telephone]
[✓ calendar]

B7 Clerical Worker

Vocabulary

clerical*
dictaphone*
headset
photocopier
receptionist
secretary*
shorthand*
stenographer*
system

*developed in text/activity

Extension

1. Schedule visit to/by school secretary
2. Schedule visit to/by high school business teacher(s) to:
    - discuss jobs
    - demonstrate business machines

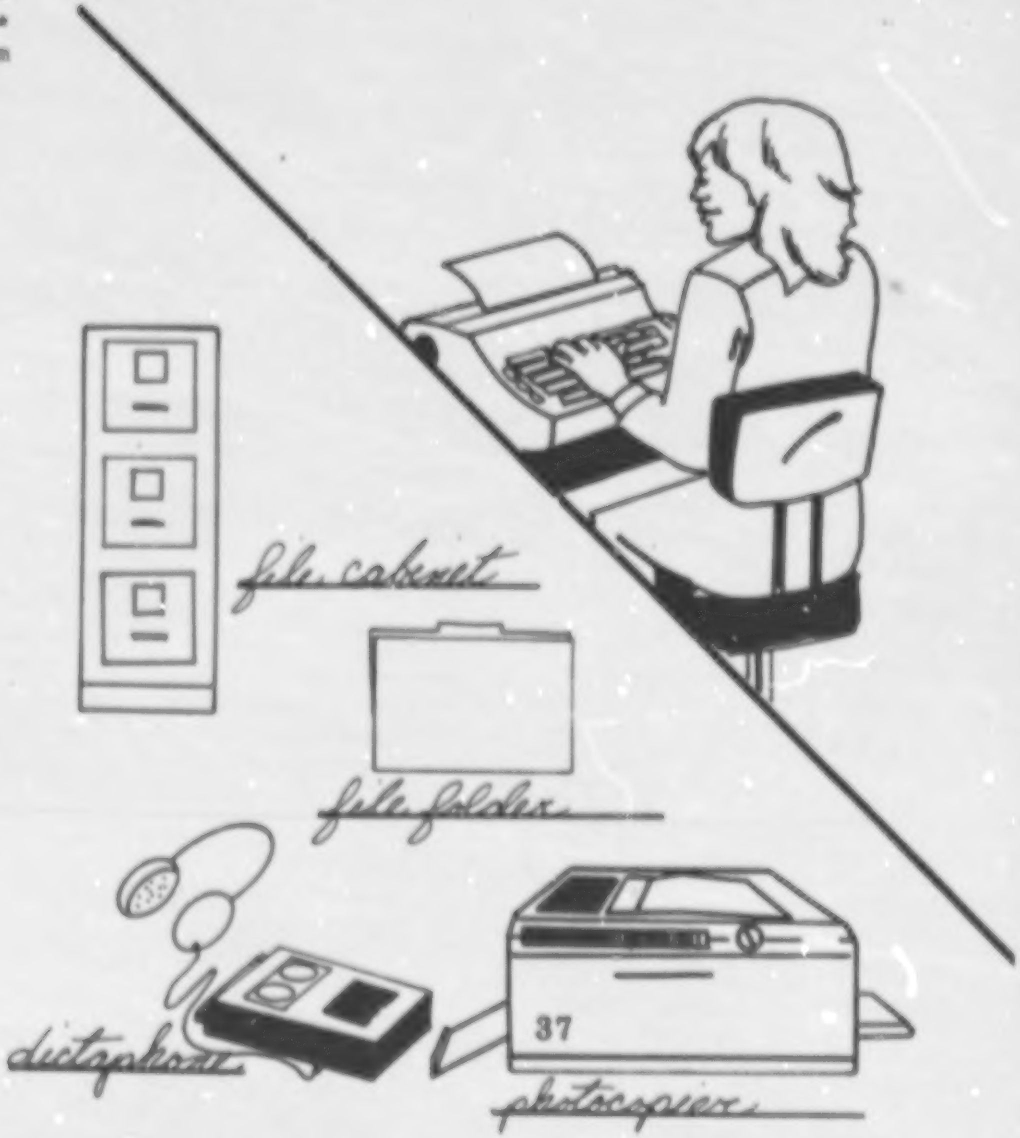
Page 37

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading the story.

Notes

B-7 Clerical Worker

This clerical worker is typing a letter that she wrote in shorthand. A copy of the letter will be filed in the file cabinet behind her.



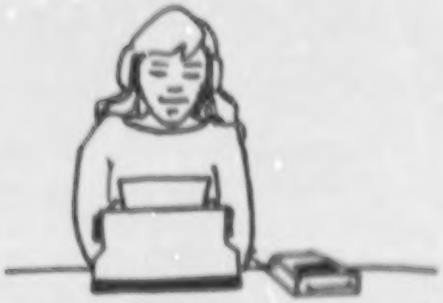
Pages 38-39

Student reads story or instructor reads story to student(s).

Notes

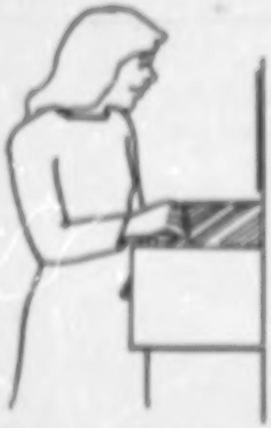
Clerical Worker

Clerical workers do a variety of jobs in offices. Clerical workers begin their careers in high school. They go into business colleges to improve their skills. Some take special courses to get higher paying jobs as legal or medical secretaries. Most business colleges have placement offices to help graduates find jobs. Although clerical jobs overlap, clerical work is done by four types of clerical workers.

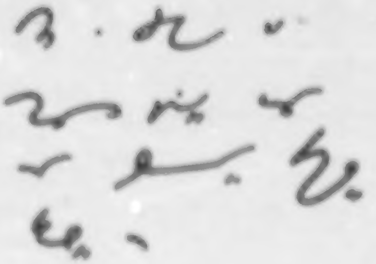


Typists type handwritten material. Typists can also type from tape recordings. The material to be typed is read into a dictaphone. The dictaphone records the message. The typists then replay the material and type as they listen. Typists using dictaphones usually wear headsets to listen to the tapes, so that other office workers are not disturbed. Typists may use other office machines like photocopiers adding machines, and word processors.

File clerks sort, organize, and store information. Usually, information is sorted into file folders. The file folders are labeled and kept in file drawers. There are many different file systems. Some folders are filed by alphabetical order, others by a number code, and still others may be color-coded. It is the file clerks' job to know the filing systems being used, to find needed files quickly, and to update or add information to files.



Stenographers use a special written language called shorthand to write down words as they are spoken. Stenographers listen and write as their employers dictate letters. Stenographers usually type the letters after taking the dictation in shorthand. Sometimes stenographers are asked to attend meetings to record what is said.



Secretaries do most of the jobs mentioned above. In additio they act as receptionists to gree clients or visitors, answer the telephones, arrange appointments for employers, and organize busin trips for other workers. Secreta are usually in charge of office supplies and equipment and may supervise other office workers.

Most small offices have one or two clerical workers who do all of the jobs that need to be done in that office. Workers are trained by employers to do jobs in special ways. In large offices, clerical workers may do only one type of task. For instance, a typist may type all day long. Clerical work varies from office to office.

Page 40

Student fills in blanks in sentences with titles of various clerical workers.

Notes

Classifying

You have read about four kinds of clerical work and the titles of the workers who do each kind of work. Although many offices have one or two workers who do all of the four jobs, pretend for a moment that you are in an office where each job is assigned to one person.

Each sentence below talks about one of the four clerical workers you read about. Fill in the blank in each sentence with the title of the worker who would be most likely to do that job. The job titles are:

file clerk typist secretary stenographer

1. Mr. James, the stenographer, used shorthand to quickly record what everyone said at the meeting.
2. The file clerk sorted the papers and put them into folders.
3. The travel plans for the conference were made by our secretary.
4. The letter had been typed by our typist.
5. The typist changed the ribbon in her typewriter before starting the next letter.
6. The stenographer typed the letter that was written in shorthand.
7. The secretary made a 10:00 appointment for her employer.
8. The files were organized in alphabetical order by the file clerk.
9. Yesterday, the secretary ordered more paper clips, staples, and pens.
10. The typist put on her headset and pushed the switch on her dictaphone.

Page 41

Student classifies words as office "equipment" or "supplies".

Notes

Equipment and Supplies

Secretaries are usually in charge of office equipment and supplies. Office equipment is the name given to the machines used in offices. Supplies are items like paper, pencils, and staples that are used frequently and must be replaced frequently.

Below is a list of things you might find in an office. Label those things that are office supplies with an S. Label office equipment E.

S paper clips

E stapler

S staples

S paper

E typewriter

S rubber bands

S typewriter ribbons

E photocopier

S eraser

E pencil sharpener

E desk

S pen

E desk lamp

E office chair

S file folder

E file cabinet

E typewriter table

S tape

Page 42

Student "files" names alphabetically and completes sequences of other filing systems.

Notes

Filing

One kind of filing system is alphabetical. Below is a list of names of employees at a large furniture factory. The file clerk will set up a filing system, listing the names, last name first, in alphabetical order.

Rewrite the names below putting them in alphabetical order. Remember to alphabetize last name first.

1. Linda C. Johnson	Adams, William B.
2. Wallace E. Dunham	Arrowsmith, John E.
3. John E. Arrowsmith	Brown, Mary J.
4. Mary J. Brown	Brown, Mary L.
5. William B. Adams	Burton, Levi W
6. Levina V. Johnstone	Dunham, Wallace E.
7. Gerald M. George	George, Gerald M.
8. Levi W. Burton	Johnson, Linda C.
9. Frederick A. Johnston	Johnston, Frederick A.
10. Mary L. Brown	Johnstone, Levina V.

* *

Sometimes files are put in numerical order. The file clerk may use a company identification number or social security number assigned to each worker.

Write in the correct numbers to fill in the blanks of the following filing sequences.

1. 091-38-3597; 091-38-3598; 091-38-3599; 091-38-3600
2. 089-40-5320; 089-40-5321 ; 089-40-5322
3. 21563.1; 21563.2; 21563.3 ; 21563.4
4. 729481a; 729481b 729481c ; 729481d
5. 364ab1; 364ab2; 364ab3; 364ab4

B7 Actuary

Vocabulary

actuary*
calculator
deductible*
guidelines
insurance*
percentage*
policy*
premium*
probability
reference (book)
statistics*

*developed in text/activity

Extension

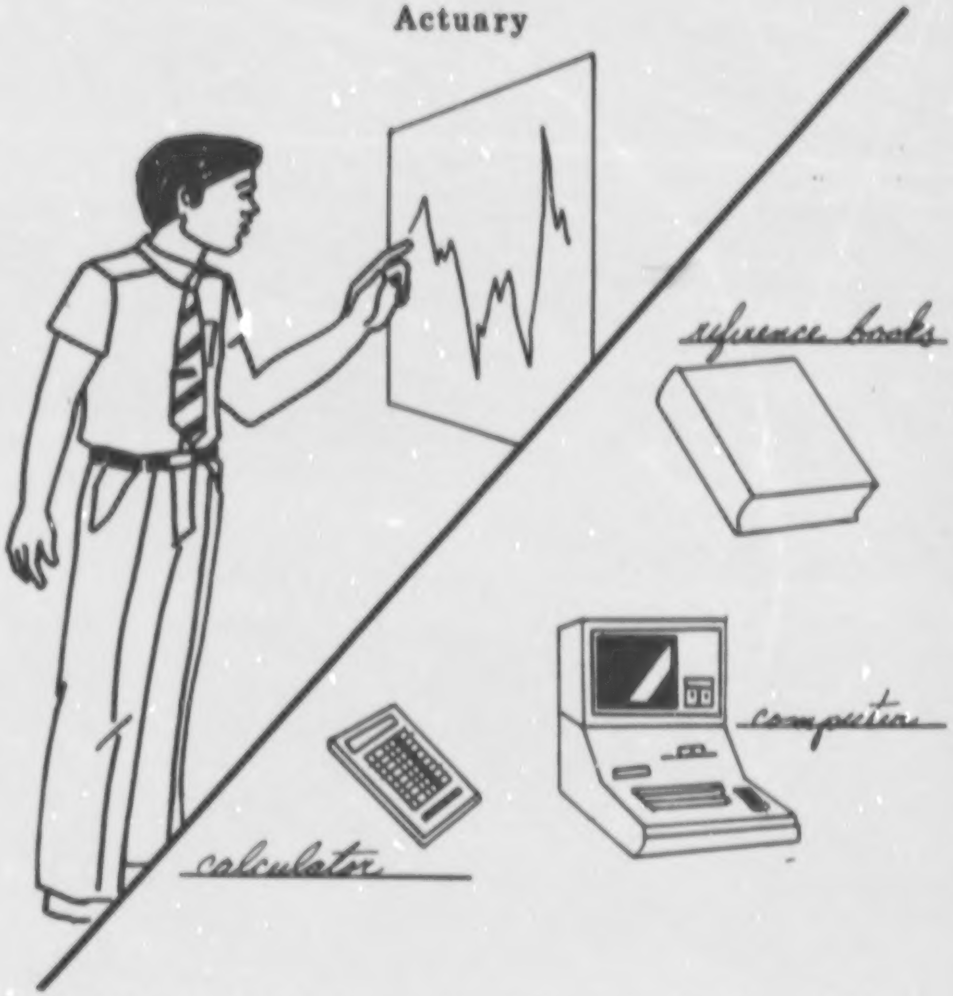
1. Display sample insurance policies.
2. Review various health/dental insurance policies.
3. Schedule talk with insurance dealer.

Page 43

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading story.

Notes

Actuary



This actuary is using a graph showing recent insurance claims to figure next year's policy rates.

Pages 44-45

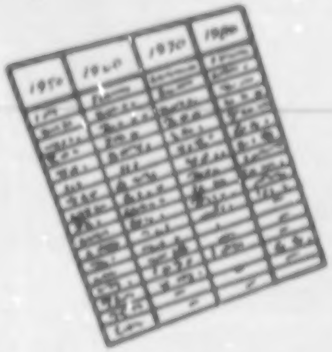
Student reads story or instructor reads story to student(s).

Notes

Actuary

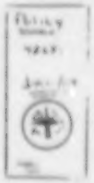
Actuaries work for insurance companies and for some governmental agencies. They spend most of their time working with a special kind of mathematics called statistics. Statistics is the study of numbers. Actuaries can use statistics to find special meaning in the numbers.

Actuaries use statistics to figure out how much to charge for different insurance policies. For instance, since as a person gets older the possibility of the person's death increases, life insurance policies cost more for older people. However, as medical care improves, the average age at time of death increases. Actuaries keep themselves aware of changes and must use statistics to change their figures.

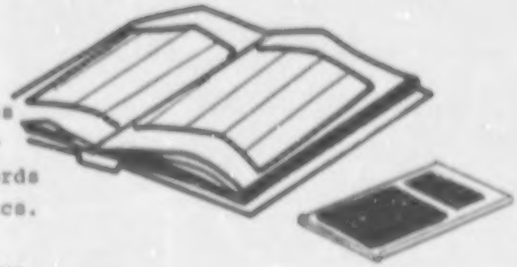


Actuaries also suggest ways for insurance companies to invest money. The money an insurance customer pays the insurance company is called a premium. Clients' premiums are invested to make money for the insurance company. The insurance company uses this money to pay its workers and to pay clients who make claims against the insurance company.

When a client insures a car with an insurance company, the client pays a premium. The size of the premium depends on many things like the size of the car, how much the car cost, the age of the driver(s), and whether the driver is a man or a woman.



When all facts are taken into consideration, actuaries can use statistics to predict the likelihood of the cars' being in an accident. The more likely the probability of accident, the higher the cost of the premium. If the car is involved in an accident, the client makes a claim against the insurance company. Depending on the amount of damage and the type of policy held by the client, the insurance company will pay for part of or all of the damage. Actuaries are responsible for predicting the probability that the insurance company might have a claim filed against it. Actuaries use legal reference books, calculators, computers, and insurance guidelines to help them write policies. They use charts, graphs, and other records to make their probability statistics. Each claim is carefully recorded. Today's claims are the figures actuaries use to predict tomorrow's probabilities.



Actuaries begin training by taking math courses in high school. In college, they take more difficult math courses. They must take a series of tests to be recognized professionally. This series of tests may be begun before graduation from college. It continues through the early part of actuaries' careers and may take up to 10 years to finish.

If you like working with numbers, perhaps being an actuary would be a satisfying career for you.

Pages 46-47

Student uses sample on page 46 to complete problems dealing with insurance deductible on pages 46 and 47. (Problems may be done in small groups or as a class.)

Notes

Deductible

Many insurance companies write policies with deductible clauses. This means that the client must pay a set amount before the insurance company pays part of or all of the bill. For instance, "$50.00 deductible" means that no matter how much the bill is, the client must pay $50.00 before the insurance company will pay any of the bill.

Use what you know about "deductible" to answer the following questions.

1. Fran had an accident with her car. It would cost $436.00 to repair the grill. Her insurance had a $100.00 deductible clause.

   a. How much of the bill would Fran have to pay? $100.00

   b. How much would the insurance company have to pay? $336.00

2. Sam broke his arm and had it set by his doctor. The bill was $85.00. Sam's doctor asked Sam to pay the bill before it was sent to the insurance company.

   a. How much did Sam have to pay? $85.00

The doctor marked the bill "paid" and filled out the insurance forms. When the insurance company receives the bill, it will "reimburse," or pay Sam back for, part of the bill. Sam's insurance has a $25.00 deductible clause.

   b. How much money will the insurance company reimburse Sam?

   $60.00

   c. How much will Sam actually pay to have his arm set?

   $25.00

3. Mr. Brown had dental insurance with a $75.00 deductible clause. The insurance company would not pay until Mr. Brown had spent $75.00. Below is the record of Mr. Brown's dental visits.

6/ 1/82	X-rays	25.00
6/ 8/82	filling	20.00
6/15/82	2 fillings	30.00
6/22/82	extraction (tooth pulled)	32.00
6/29/82	cap	212.00
7/ 6/82	root canal	115.00

a. What was Mr. Brown's total dentist bill? $434.00

b. How much did Mr. Brown have to pay? $75.00

c. For how many visits did Mr. Brown pay? 3

d. After which visit had Mr. Brown met the deductible clause?

6/15/82
(date)

e. On what visit (date) did the insurance company begin paying?

6/22/82

f. How much did the insurance pay? $359.00

Pages 48-49

Student uses problem sample on page 48 to complete problems dealing with percentages on pages 48 and 49.

Notes

Percentages

Often, insurance policies are written so that when the client has met the deductible clause, the insurance company will pay a percentage, or part, of the remainder of the bill.

For instance, Sarah's health insurance has a $50.00 deductible. After Sarah pays the $50.00, the insurance company will pay 80% of the rest of the bill. If Sarah's doctor bill was $360.00, the payment would work like this:

Bill	$360.00
Sarah's deductible	- 50.00
Remaining bill	$310.00
Insurance pays 80%	x .80
Insurance will pay only	$248.00
Sarah must pay	$310.00
remainder of bill	-248.00
	$ 62.00
Deductible	$ 50.00
remainder of bill	62.00
	$112.00
Sarah's total payment	

Deductible and Percentage Problems

Do the following problems about deductible and percentage rates. Use Sarah's problem as a sample.

1. Louis' dental insurance has no deductible on X-rays. They pay 90% of all X-ray costs. Louis had dental X-rays totaling $130.00 last month.

   a. How much will the insurance company pay? $117.00

   b. How much will Louis have to pay? $13.00

2. Megan's automobile insurance has a $200.00 deductible, but the insurance company pays 100% of the repairs after the deductible has been met. After her accident, it cost $834.69 to repair the front of her car.

   a. How much did Megan have to pay? $200.00

   b. How much did the insurance company pay? $634.69

3. Jerry's health insurance will pay 85% of any costs over the $75.00 deductible. When he broke his leg, it cost $180.00 to set the fracture.

   a. How much of the bill was left after Jerry paid the deductible?

   $105.00

   b. How much did the insurance company pay? $89.25

   c. Besides the deductible, how much of the remaining bill did Jerry have to pay? $15.75

   d. Including the deductible, what was Jerry's total payment?

   $90.75

Pages 50-51

Student uses bar graph on page 51 to answer questions on page 50.

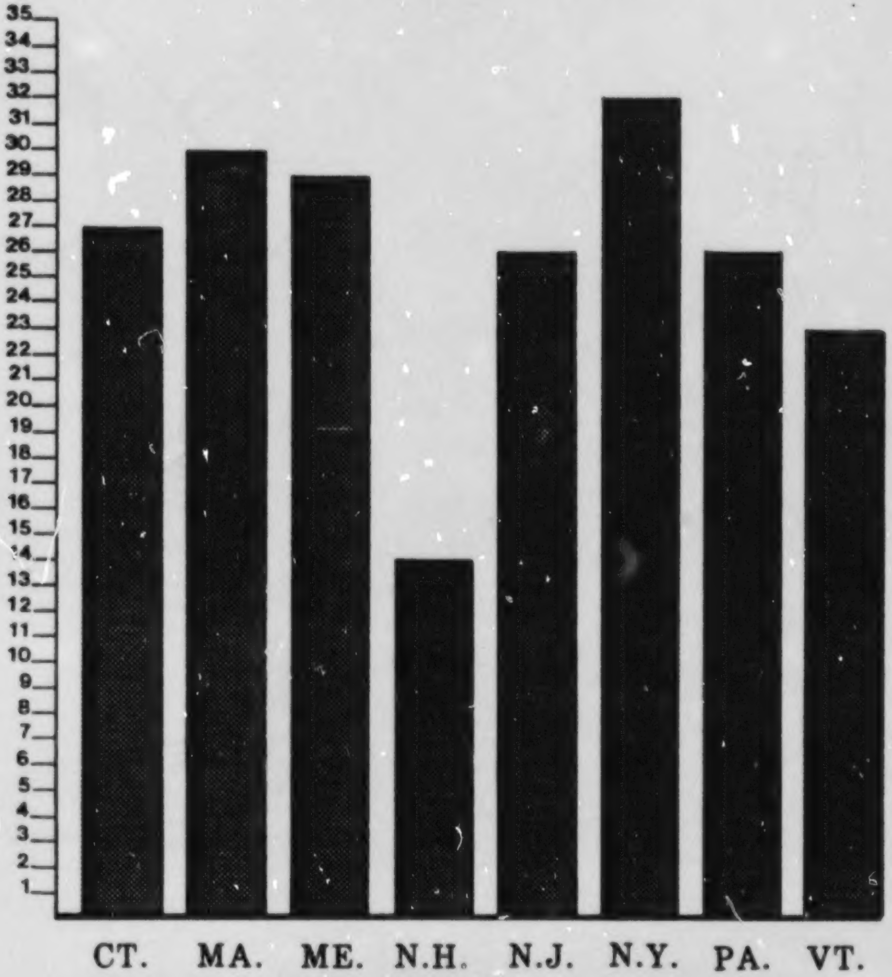
Notes

Bar Graph

Actuaries use graphs to compare numbers. They use the information from graphs to estimate insurance rates. Answer the questions below by looking at the graph on the following page. (The bar graph on the following page is not a graph of real figures. It does not reflect the true accident rate in any of the states listed.)

1. What is the title of this bar graph? Accidents Causing More Than $1000.00 Damage
2. How many states are recorded on the graph? 8
3. Which state had the most accidents causing more than $1000.00 damage? N.Y
4. Which state had the least accidents causing more than $1000.00 damage? N.H
5. How many accidents with damage over $1000.00 were reported in Maine? 29; Massachusetts? 30; New York? 32; Connecticut? 27; New Hampshire? 14
6. Which two states reported the same number of accidents? NJ and VT
7. Insurance rates are higher for states reporting more accidents. Which state would have the highest insurance rates? NY Which state would have the lowest? NH
8. If a New York resident had a car accident that caused $897.00 worth of damage, would that accident be counted on this graph? No
9. What is the difference between the highest and lowest accident rates on this graph? 18

Accidents Causing More Than $1000.00 Damage



B7 Cashier

Vocabulary

cashier*
complaint
computerized*
discount*

manager
purchase
register
situation

*developed in text/activity

Extension

1. Visit stores to observe cashiers.

2. Classify types of stores/products.

3. Ask to allow students to use cafeteria cash register.

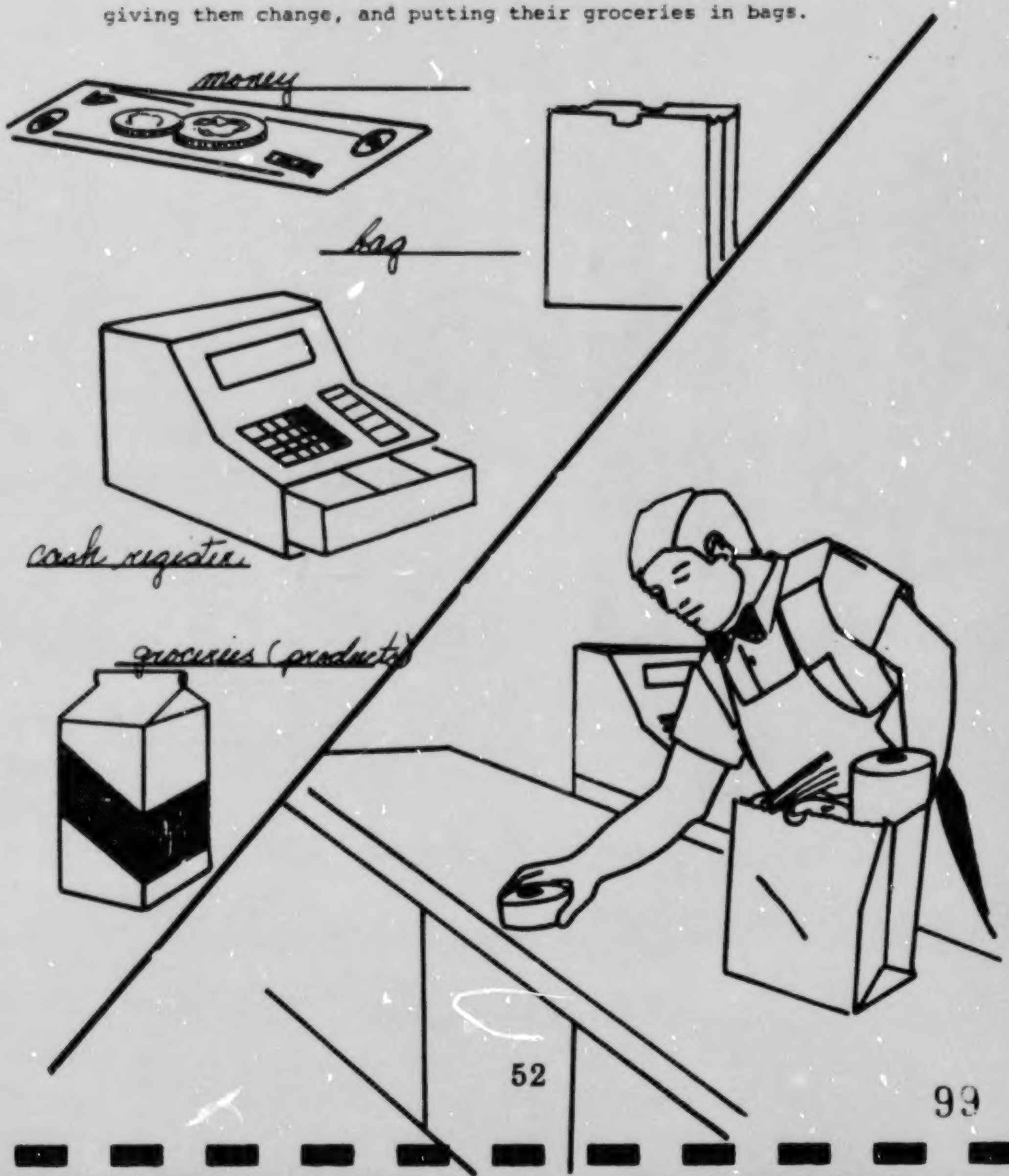
Page 52

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading story.

Notes

B-7 Cashier

This cashier works in a supermarket. He helps customers by totaling their purchases on the cash register, taking their money, giving them change, and putting their groceries in bags.

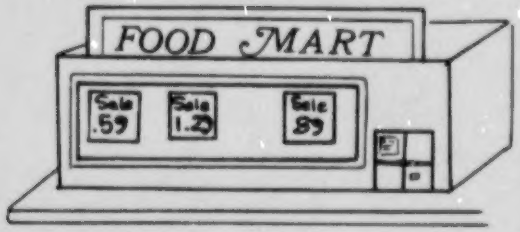


Pages 53-54

Student reads story or instructor reads story to student(s).

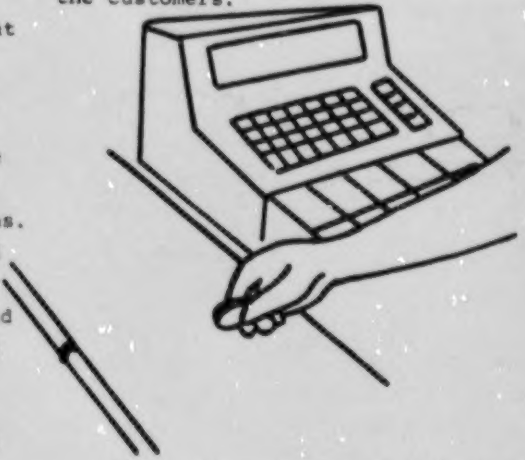
Notes

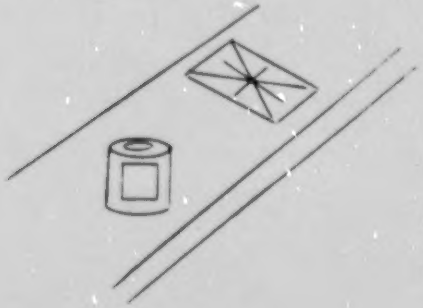
Cashier



Cashiers work in supermarkets, stores, and other places where customers pay for goods and services. Employers usually train cashiers on the job. Having good math skills is helpful. Cashiers should also like dealing with people in a friendly way. Sometimes, the only store employees that customers see are the cashiers. It is important that cashiers make a good impression on the customers.

Cashiers handle the money that customers pay for goods that they buy. They use a cash register to record how much each item costs. Then the cash register adds up the costs of the items and tells the cashier the total cost of the items. When the cash register has totaled the prices, the cash drawer opens. The cashier takes the money offered by the customer and puts it in the cash drawer. If the customer has given the cashier too much money, the cashier makes change and gives it to the customer.



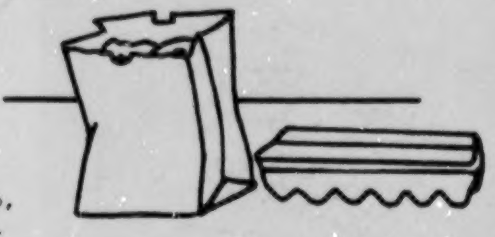


Many stores now use computerized cash registers. Some of these systems have electric "scanners" which "read" the pricing information on product labels. The scanner tells the register how much the price is. The cashiers don't have to punch the keys of the cash register. They simply move the scanner over the coded pricing information, or move the product over a

Cashiers help customers in many ways. They may answer customer's questions about the products the store carries and the prices of items. They may receive complaints from customers. Sometimes they handle complaints themselves, and other times they may call the store manager to deal with customers' complaints. Cashiers also help wrap, or bag, customers' purchases. Sometimes this takes a great deal of care. Customers don't like to unpack their purchases and find squashed bread or broken glassware.

built-in scanner. Many cash registers tell the cashiers how much change the customer should get back. The new cash register systems make "checking out" much quicker and easie

When cashiers are not busy helping customers check out, they have other tasks to do. Sometimes they use a pricing machine to stick price labels to products. Sometimes they keep the shelves near their cash registers full of products. At other times they may be cleaning their work areas.



Cashiers sometimes stand in the same place for hours on end. They have to deal with many kinds of people in a variety of situations. Cashiers need to be trustworthy in handling money and credit. Cashiers who are very good at their jobs sometimes get jobs as head cashiers. Head cashiers train other cashiers an supervise their work.

If you are a trustworthy person who enjoys working with the public, perhaps becoming a cashier would be a good way to begin your career.

Page 55

Student completes basic addition of money word problems.

Notes

Cash registers help cashiers in two ways. They add up the prices of items to tell the cashier the total cost of the customers' purchases. The cash register also has a drawer that is divided into spaces to hold all of the different coins and bills with which customers pay for their goods.

Complete the problems below to see how much time and work the cash register saves.

1. Mr. Jefferson bought a pair of pants for $22.98, a shirt for $18.69, a necktie for $3.98, and shoes for $28.50. What was the total cost of Mr. Jefferson's outfit? $74.15

2. David walked to the store for his mother. He bought milk for $1.14, bread for $.78, and margarine for $.67.

   a. What was the total cost of the groceries? $2.59

   b. David paid for the groceries with a five-dollar bill. How much change did the cashier give David? $2.41

3. Mrs. Ortiz went to the auto parts store to buy parts to service her car. She bought an oil filter for $5.78 and 5 quarts of oil which cost $1.09 each.

   a. What was the total cost of the 5 quarts of oil? $5.45

   b. What was the total cost of the oil and the filter? $11.23

   c. If Mrs. Ortiz paid with a twenty-dollar bill, how much change would she get? $8.77

Page 56

Student figures sales tax for given money amounts.

Notes

Sales Tax

Stores in some states have to charge sales tax on their goods. If the sales tax is 7%, multiply the total x .07, and add this product to the total.

For instance, 7% tax on a $9.00 order would be figured like this.

subtotal of goods	$9.00	subtotal	$9.00
x tax rate	x .07	tax on $9.00	+ .63
tax on $9.00	$ .63		$9.63

4. Figure the total cost + tax on the following orders.

a. 4% tax on $23.00	$.92 (amount tax)	$23.92 (total cost)
b. 6% tax on $58.00	$3.48 (amount tax)	$61.48 (total cost)
c. 7% tax on $100.00	$7.00 (amount tax)	$107.00 (total cost)
d. 8% tax on $2,000.00	$160.00 (amount tax)	$2160.00 (total cost)
e. 9% tax on $5,000.00	$450.00 (amount tax)	$5450.00 (total cost)

Page 57

Student uses sample problem to figure specific discounts.

Notes

Discounts

Many stores hold seasonal sales to sell items quickly. Often they discount, or charge less for, items by a certain percentage. For instance, a discount of 20% works like this.

cost of item	$42.00	item price	$42.00
x 20 percent	x .20	less discount	- 8.40
discount	$8.40		$33.60

Figure the discounts of the following sale items.

Bicycle
25% off
regular price
of $219.00
$54.75
(amount discount)
$164.25
(sale price)

Video Game
40% off
regular price
of $139.00
$55.60
(amount discount)
$83.40
(sale price)

Color television
15% off regular
price of
$694.00
$104.10
(amount discount)
$589.90
(sale price)

Swimming pool
20% off regular
price of
$3,497.00
$699.40
(amount discount)
$2797.60
(sale price)

Page 58

Student classifies grocery items into generic categories.

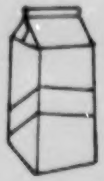
Notes

Classifying

Cashiers need to be aware of where items are located within their stores. Often, customers ask the cashiers where to find certain products. Below is a list of the aisles in the Food 4 U Supermarket. Beside each aisle number are the types of food found in the aisle.

On the line beside each numbered product, write the number of the aisle where you would find that product.

Aisle 1	dairy products/produce
Aisle 2	meats/frozen foods
Aisle 3	canned fruits/juices
Aisle 4	snacks/beverages
Aisle 5	flour/baking needs
Aisle 6	paper goods/cleaning products
Aisle 7	pet needs/health care



7 1. dog food

2 2. frozen pizza

6 3. napkins

3 4. apple juice

1 5. sliced cheese

2 6. pork chops

5 7. sugar

1 8. lettuce

3 9. canned pears

7 10. toothpaste

7 11. aspirin

5 12. cake mix

7 13. flea collar

1 14. milk

2 15. ground beef

1 16. butter

3 17. canned peaches

1 18. fresh apples

2 19. ice cream

4 20. peanuts

B7 Assistant Bank Manager

Vocabulary

application	ledger
branch (bank)	routine
economics	vault*

*developed in text/activity

Extension

1. Visit local bank.
2. Schedule visit to/by assistant bank manager.
3. Ask for training packets from bank.

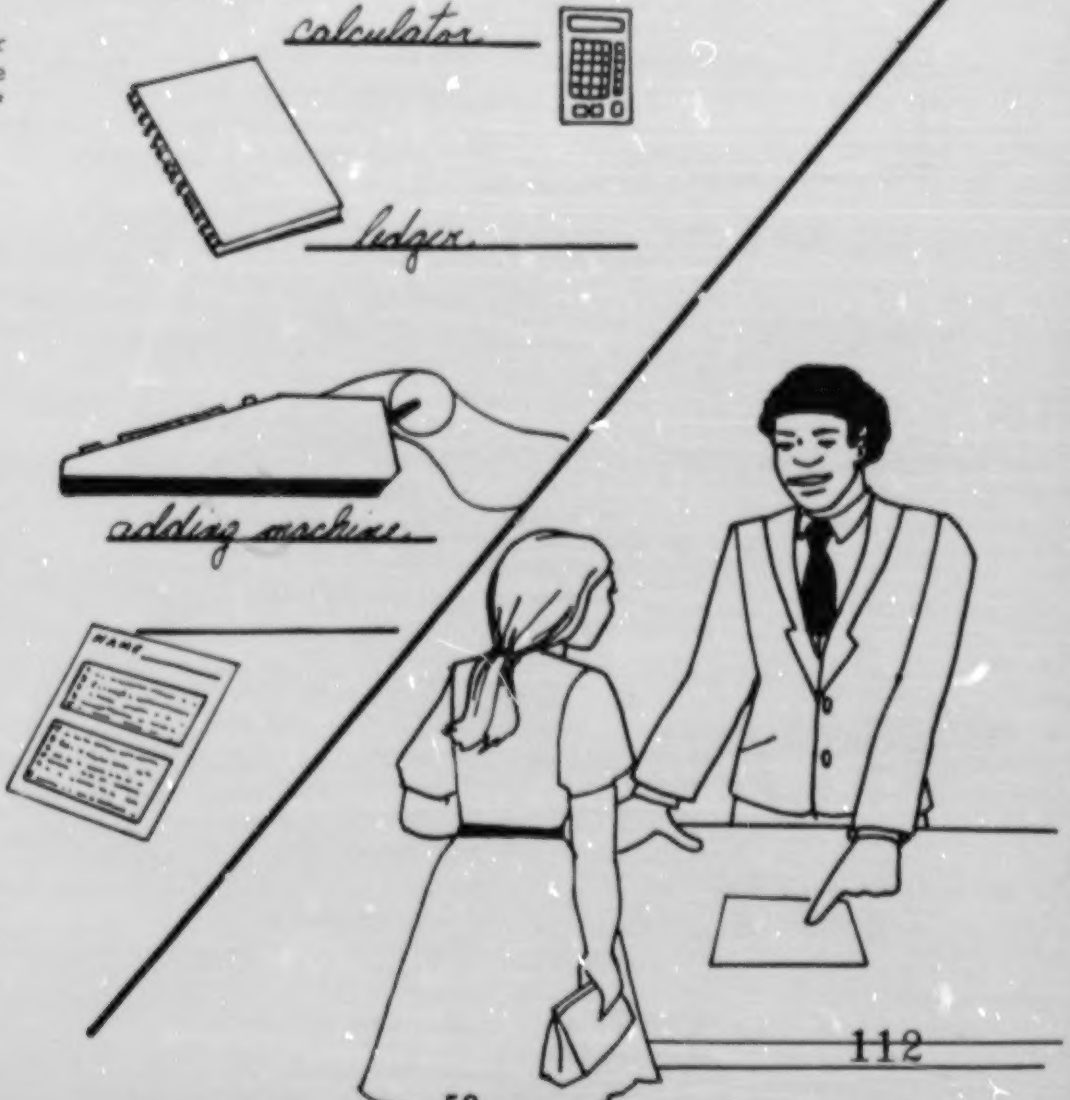
Page 59

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading story.

Notes

Assistant Bank Manager

This assistant bank manager is helping a customer open a new savings account.



Pages 60-61

Student reads story or instructor reads story to student(s).

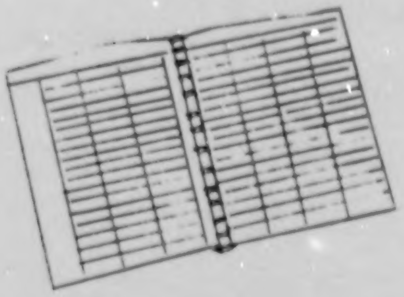
Notes

Assistant Bank Manager

NATIONAL BANK

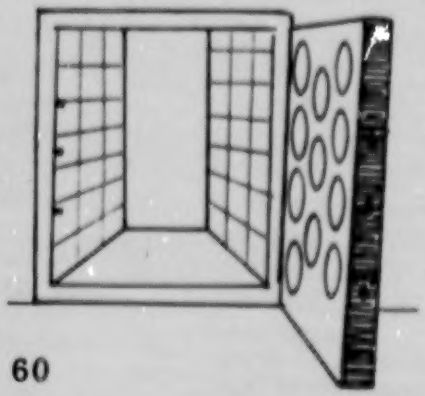
Assistant bank managers help branch managers supervise the operation of banks. They begin preparing for this career by taking business, economics, and math courses in high school. After high school, they take business and management courses in college. Many large banks offer vocational training programs as well as on-the-job training.

Assistant bank managers supervise the work of the bank tellers or cashiers who work with customers having routine bank business. They help schedule tellers' work hours, work load, and vacations. Assistant managers oversee the daily accounting of all money coming into and leaving the bank. They keep lodgers where all the information is recorded.

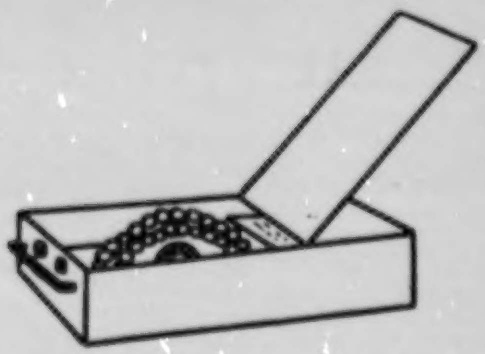


Assistant bank managers also work with customers who need to have special services. They may work with customers who are opening accounts or making applications for loans. Since these services take longer, assistant managers, rather than tellers, handle customers needing these services.

Assistant bank managers are usually in charge of supervising the vault, where money and valuables are kept. The vault is a room-sized safe with a very thick, heavy door. Most vault doors operate on a time clock, so the vault can be opened only at a certain time. The vault contains the money which customers bring in during



the day. The vault also holds safe deposit boxes, which customers may rent. Customers can store valuable papers, jewelry or other small items in safe deposit boxes in the bank's vault for safe keeping. Usually, customers are charged monthly for this service.



Assistant bank managers use ledgers to keep accounts of business and various application forms to give customers the services they want. They may use adding machines, calculators, or computers to help them keep track of accounts. They also may use typewriters and photocopiers in the course of preparing applications and accounts.

They handle cash, checks, and night deposits which are left in night depositories by customers.

Assistant bank managers are respected and trusted by their employers and employees. If you are a responsible person who likes working with others, perhaps banking is a good career for you.

Pages 62-64

Student uses sample problems on page 62 to complete problems dealing with interest on pages 63-64.

Notes

Interest

When someone puts money into a bank, the money doesn't just sit there! It is loaned to other people, who pay for loan service. Depositors are paid interest when they put money in the bank. Loan holders pay interest when they borrow money from the bank.

Here's how it works:

Danielle deposits $200.00 in the bank. She is paid 7.5% interest on her account.

deposit	$200.00	$200.00	deposit
x .075	x .075	+ 1.50	interest
	1000	$201.50	total in account
	1400		
interest earned	1.50		

The bank actually owes Danielle $201.50 because of her added interest.

If someone borrows $200.00 from the bank they may be charged 17.5% interest.

amount of loan	$200.00	amount of loan	$200.00	
x interest rate	x .175	amount of interest	+ 35.00	
	1000		$235.00	amount borrowe
	1400			must pay back
	200			
amount interest	$35.00			

Interest

The borrower must actually pay back $235.00. The extra $35.00 is the cost of getting the loan.

On Danielle's $200.00 deposit the bank has earned $35.00 in interest paid by the borrower. The bank owes Danielle $1.50 in interest on her account.

bank earned	$35.00
bank paid Danielle	+ 1.50
bank profit	$33.50

The bank made a profit of $33.50 on the $200.00 deposit. The costs of running the bank (employees' pay, equipment, building) are paid for by the profits the bank makes.

Find the answers to the problems below.

1. Joe has $800.00 in his savings account. His bank pays 7.5% interest each year.
   a. How much interest will Joe's $800.00 earn in one year? $60.00
   b. After one year, how much will the total be in Joe's savings account? $860.00
2. Myra needed to borrow $2,000.00. The interest rate on her loan was 17.5%.
   a. How much interest will Myra have to pay the bank? $350.00
   b. What is the total amount that Myra will have to pay the bank? $2350.00

Interest

3. Amy has $4,000.00 in her savings account. Her bank pays 6.75% interest each year.
    a. How much interest will Amy earn in one year? $270.00
    b. How much money will Amy have in her savings account at the end of one year? $4270.00

4. Donald needed to borrow $600.00 for a year. His bank charged 14.5% interest per year.
    a. How much interest will Donald have to pay on his loan? $87.00
    b. What is the total amount that Donald will have to pay back? $687.00
    c. If the amount is divided into 12 monthly payments, how much will Donald have to pay each month? $57.25

Pages 65-67

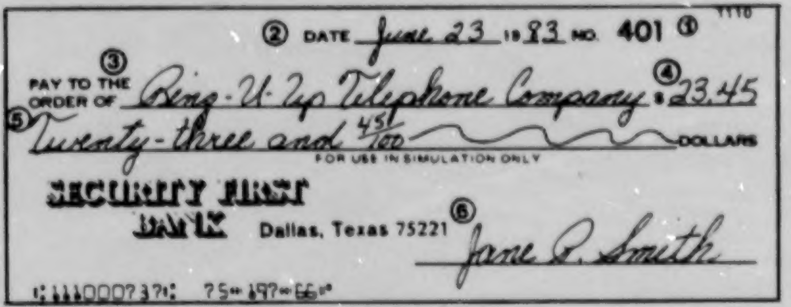
Student completes exercises dealing with handling a checking account.

Notes

Checking Accounts

Most banks offer their customers checking accounts. Here's how it works. A customer deposits money in a checking account. The customer is given a checkbook and a record book. When the customer wants to pay for something, he writes a check to the person he's paying. The check is good only to the person or company whose name is on the check. The person or company who gets the check can cash it at a bank and get the amount of money that is written on the check. The checking account holder keeps track of the amounts of the checks he's written in his record book.

Checks are written in a special way. Look at the check below.



② DATE June 23 19 83 NO. 401 ①

③ PAY TO THE ORDER OF Ring-U-Up Telephone Company ④ $ 23.45

⑤ Twenty-three and 45/100 DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK Dallas, Texas 75221

⑥ Jane Q. Smith

1. The account number for the check is preprinted on each check.
2. The check writer writes the date on which the check is written.
3. The check writer writes the name of the person or the company he wishes to pay.
4. The check writer writes the amount of money, in numerals, that the check is for.
5. The check writer again writes the amount--this time in words. The cents amount is written as a fraction (45¢ = 45/100; 00¢ = 00/100).
6. The check writer signs his/her name. The check is not able to be cashed without this signature.

Complete the following checks by filling in the missing parts.

Checks

Some answers will vary

$\frac{32\text{-}73}{1110}$

DATE ______________ 19____ NO. 401

PAY TO THE ORDER OF Sing Along Record Shop $ 17.48

Seventeen and 48/100 —————— DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK Dallas, Texas 75221

Horace Hummer

⑆111000737⑆ 75⑈197⑈66⑈

$\frac{32\text{-}73}{1110}$

DATE January 2 19 81 NO. 401

PAY TO THE ORDER OF ______________________ $ 64.87

Sixty-four and 87/100 —————— DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK Dallas, Texas 75221

Gary Gardiner

⑆111000737⑆ 75⑈197⑈66⑈

$\frac{32\text{-}73}{1110}$

DATE ______________ 19____ NO. 401

PAY TO THE ORDER OF ______________________ $ 283.72

Two hundred eighty-three and 72/100 —— DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK Dallas, Texas 75221

____

⑆111000737⑆ 75⑈197⑈66⑈

Recording Checks

Every checking account holder has a special booklet in which checks and deposits are recorded. Each time a check is written, the amount is subtracted from the amount, or balance, left in the account. Each time a deposit is made, the amount of the deposit is added to the balance. In this way account holders always know exactly how much money is in their checking account.

Fill in the missing numbers on the following record book pages.

NUMBER	DATE	DESCRIPTION OF TRANSACTION	PAYMENT/DEBT (−)		DEPOSIT/CREDIT (+)		BALANCE	
							$ 834	29
401	6-5-83	Sing Along Record Shop	$ 17	48	$		-17 816	48 81 ←
402	6-7-83	Green Thumb Shop	64	87			-64 751	87 94 ←
403	6-8-83	Mr. Carpenter	479	38			-479 272	38 56 ←
	6-10-83				350	00	+350 622	00 56 ←
404	6-11-83	Food-4-U	126	83			-126 495	83 ← 73 ←
405	6-14-83	Sam's Garage	48	43			-48 447	43 ← 30 ←
406	6-18-83	Village Florist	50	00			-50 397	00 ← 30 ←
407	6-21-83	Fran's Furniture	390	68			-390 6	68 ← 62 ←
	6-22-83				500	00	+500 506	00 62 ←

B7 Computer Operator

Vocabulary

communicate
engineering

keypunch*
program (computer)*
research

*developed in text/activity

Extension

1. Visit computer training room in high school.
2. Visit business using a computer.
3. Schedule visit/demonstration to/by computer salesman.

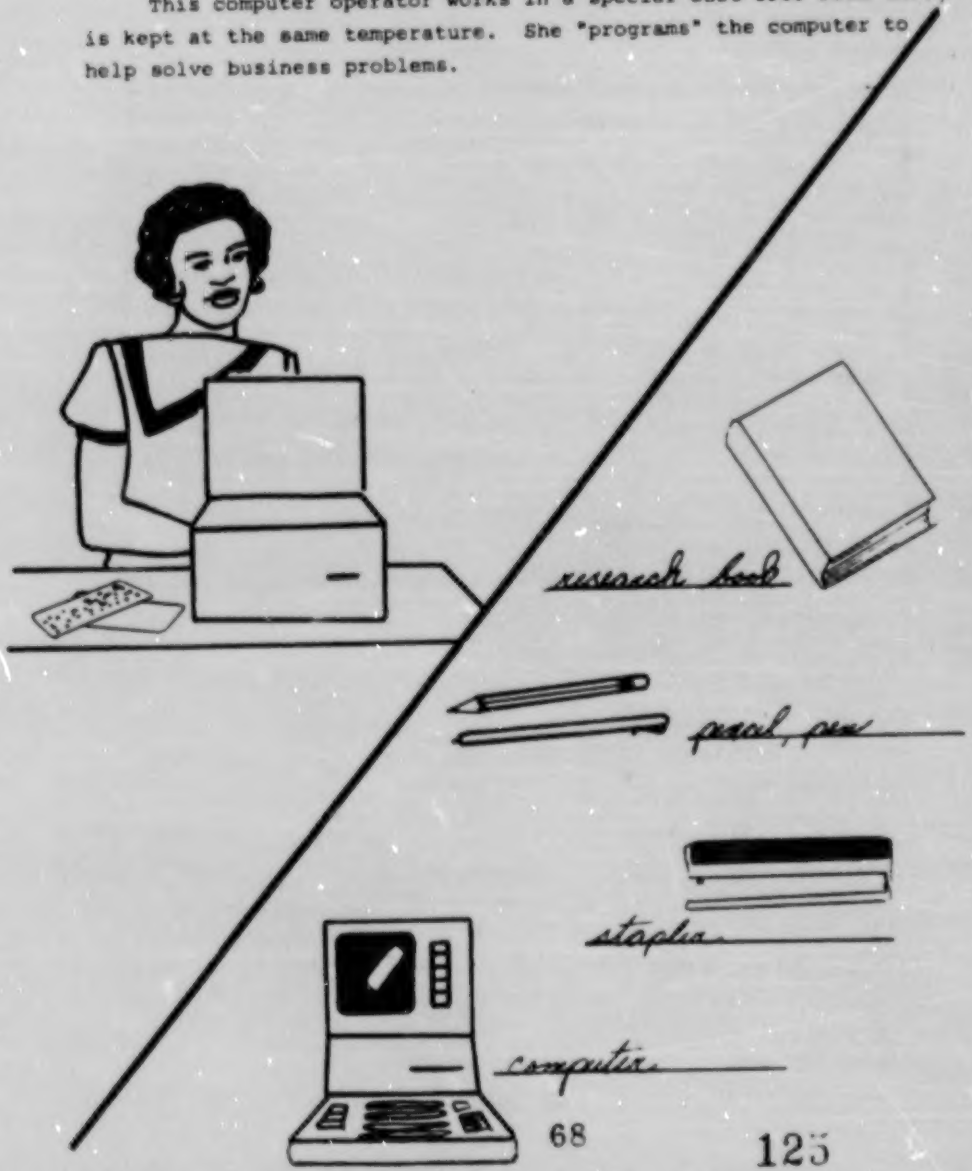
Page 68

Complete this page in conjunction with vocabulary development or direct student to label tools/equipment after reading story.

Notes

B-7 Computer Operator

This computer operator works in a special dust-free room that is kept at the same temperature. She "programs" the computer to help solve business problems.



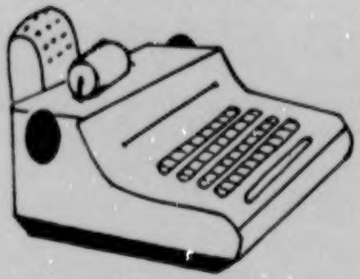
Pages 69-70

Student reads story or instructor reads story to student(s).

Notes

Computer Operator

Computer operators run computers for businesses. Many businesses now use computers to keep track of the goods they have on hand, the flow of money into and out of the business, employment records and other information used to run the business. Banks, insurance companies, transportation companies and many other businesses rely on computers to provide the information they need to work well.



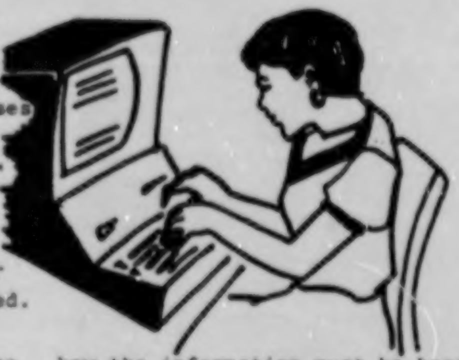
Keypunch operators "feed" information into computers. They work at keypunch machines, which look like typewriters. The keypunch operators use the machines to punch holes into paper cards. The patterns of holes in the cards tell the computers what to do. Keypunch operators have to be very careful and do their work accurately, so the computer runs properly.

Because of the changes in computers, keypunch operators are used less frequently. It is now possible to operate computers directly, without "feeding" the computers with keypunched cards. However, training in keypunch operation is still available at vocational schools and community colleges.

Computer programmers receive their training at colleges. More and more colleges are offering courses in computer programming. Computer programmers take courses in math, business, engineering, and science.

KEY PUNCH OPERATOR
COMPUTER PROGRAMMER

They learn the special "languages" that are used to communicate with computers. Some computer programmers receive training through courses offered by computer companies.



Computer programmers "program" computers. That is, they "tell" the computer what to do. To start at the beginning, computer programmers identify a problem to be solved. They research the problem to find information that will help solve the problem. Then the programmers decide how the information must be handled in order to solve the problem. They set up the computer to take in the information, then the programmers type in the information. The programmers use a special "language" to tell the computers what to do with the information. When the computer has all the information and knows what to do with it, the computer solves the problem.

Programmers and keypunch operators work in offices and computer rooms. Computer rooms are kept very clean. Usually the rooms are kept at a constant temperature to keep the computers working well. Many businesses now have computer rooms.

Keypunch operators and computer programmers use computers, research books, keypunch machines and regular office supplies, like paper, pencils, staplers, and paper clips. When they are not working at the computers, they often work at desks in offices.

Computer operation is a growing career field with many opportunities for interested workers.

Pages 72-73

Student uses circle graph to answer question on page 72.

Notes

Circle Graph

Marge used her home computer to check her flow of money. She typed in the amount of money she spent for rent, food, automobile/gas, utilities, clothing, medical/dental expenses, savings, and recreation. The computer printed out the circular graph on the following page.

Answer the questions below by looking at the graph on the following page.

1. Marge spends the most for rent.
2. Marge spends the least for medical/dental.
3. In what two budget categories does Marge spend equal amounts?
   clothing and recreation
4. Marge makes $1200/month in salary.
   a. How much does she spend on rent per month? $372.00
   b. How much on clothing? $60.00; recreation? $60.00
5. How much per year does Marge spend on her car? $1594.00; utilities? $1296.00
6. What is Marge's yearly salary? $14400.00
7. On the blank line on or near each pie section, write the amount of money Marge spends yearly for that budget category.

Page 71

Student completes true/false problems.

Notes

True and False

Write T in front of the true sentences; F in front of the false sentences.

F 1. A keypunch operator makes keys from flat pieces of metal.

F 2. A computer operator fixes broken computers.

T 3. A keypunch operator uses a machine that looks like a typewriter.

F 4. A computer programmer organizes company parties and entertainment.

T 5. Computer programmers learn their skills in colleges and on the job.

T 6. A keypunch operator uses a machine to punch holes in paper cards.

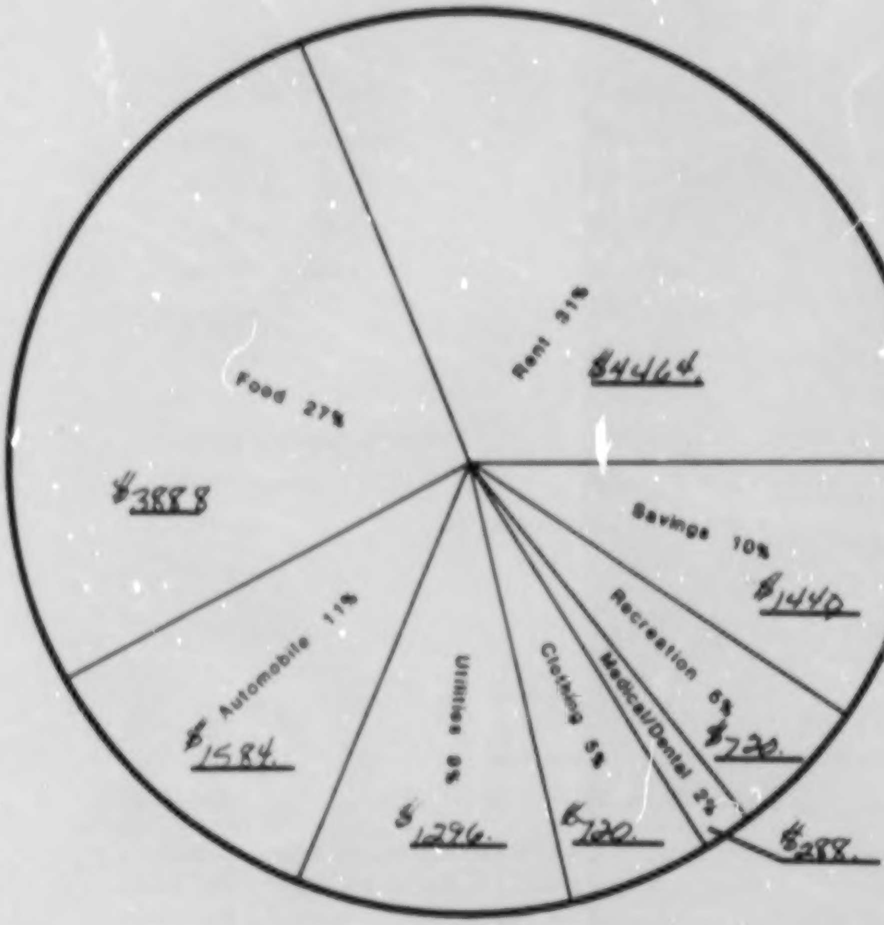
T 7. Computer programmers often do research to find information.

F 8. Computer programmers always work in dust-free computer rooms.

T 9. Programmers type information into computers.

T 10. Computer programmers use a special "language" to tell computers how to handle information.

Marge's Budget



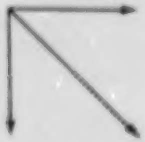
Pages 74-75

Student locates business and office words in word search puzzle.

Notes

Business and Office Word Search

There are 30 words hidden in the word search puzzle on the following page. The words are written from left to right and from top to bottom. Some words are written diagonally from upper left to lower right.



See how many Business and Office words you can find in the word search puzzle.

account
actuary
applications
assistant bank manager
bags
calculator
cashier
cash register
clerical worker
computer
computer operator
dictaphone
file cabinet
file clerk
graph

insurance policy
keypunch cards
keypunch operator
ledger
money
photocopier
programmer
secretary
stapler
statistics
stenographer
telephone
typewriter
typist
vault

A	S	S	I	S	T	A	N	T	B	A	N	K	M	B	A	G	S
K	Y	P	H	O	T	O	C	O	P	I	E	R	A	M	X	C	A
E	A	N	D	Y	F	I	L	E	C	A	B	I	N	E	T	A	P
Y	S	Y	S	I	K	I	S	J	L	K	W	C	A	T	S	S	P
P	T	R	A	U	C	L	L	T	I	J	H	A	G	E	T	H	L
U	E	A	R	C	R	T	X	E	A	V	I	S	E	L	A	R	I
N	N	C	T	O	C	A	A	T	C	P	G	H	R	E	T	E	C
C	O	T	Y	M	G	O	N	R	Y	L	L	I	F	P	I	G	A
H	G	U	P	P	M	R	U	C	H	P	E	E	U	H	S	I	T
O	R	A	I	U	O	T	A	N	E	O	E	R	R	O	T	S	I
P	A	R	S	T	N	M	V	M	T	R	N	W	K	N	I	T	O
E	P	Y	T	E	E	S	F	U	M	N	O	E	R	E	C	E	N
R	H	N	E	R	Y	L	E	D	G	E	R	L	E	I	S	R	S
A	E	C	A	L	C	U	L	A	T	O	R	D	I	G	T	T	H
T	R	K	E	Y	P	U	N	C	H	C	A	R	D	C	O	E	Z
O	C	L	E	R	I	C	A	L	W	O	R	K	E	R	Y	R	R
R	C	O	M	P	U	T	E	R	O	P	E	R	A	T	O	R	Q
Z	S	E	C	R	E	T	A	R	Y	S	R	B	V	A	U	L	T
B	A	N	D	W	G	R	A	P	H	P	C	O	B	P	A	C	Q

Page 76

Student writes story about favorite worker in Business and Office Career Cluster.

Notes

Write a Story

Write a story about your favorite worker in the Business and Office Career Cluster.

-Basic-

Self Awareness

Performance Objectives

SA-B1 Students given instruction with (grade K) CHOICE folder activities B1-SA-1 through B1-SA-5
Will demonstrate ability to:
- name 7 out of 10 body parts (arms, ears, eyes, feet, hands, head, legs, mouth, nose, torso) and
- identify 3 out of 4 feelings (anger, fright, happiness, sadness)

As evidenced by the students' participation in instruction with the 5 CHOICE folder activities

SA-B2 Students given instruction with (grade 1) CHOICE folder activities B2-SA-1 through B2-SA-10
Will demonstrate ability to:
- name 5 out of 7 body parts (elbows, fingers, knees, shoulders, toes, tongue) and
- identify 4 out of 5 senses (hearing, sight, smell, taste, touch)
- choose a favorite skill (climbing, dancing, listening, running, singing, skipping, talking, walking)

As evidenced by the students' participation in instruction with the 10 CHOICE folder activities.

SA-B3 Students given instruction with (grade 2) CHOICE folder activities B3-SA-1 through B3-SA-8
Will demonstrate ability to:
- measure any of their own 5 body parts or classroom objects and
- name 3 differences between 2 homes they have lived in and/or 3 differences between 2 of their friends

As evidenced by the students' participation in instruction with the 8 CHOICE folder activities

SA-B4 Students given instruction with (grade 3) CHOICE folder activities B4-SA-1 through B4-SA-7
Will demonstrate ability to:
- fill out own I.D. cards (name, address, phone or school bus number, age)
- name the places on the human body where blood, bones, skull, veins, and wrists are located
- identify 3 feelings (boredom, loneliness. bravery)

As evidenced by the students' participation in instruction with the 7 CHOICE folder activities

SA-B5 Students given instruction with (grade 4) CHOICE folder activities B5-SA-1 through B5-SA-4
Will demonstrate ability to:
- identify 4 feelings (dreaminess, embarrassment, hurt, impatience) and/or
- name 4 "universal needs" (caring, clothing, food, shelter)

As evidenced by the students' participation in instruction with the 4 CHOICE folder activities

SA-B6 Students given instruction with (grade 5) CHOICE folder activities B6-SA-1 through B6-SA-5
Will demonstrate ability to:
- identify 2 feelings (hate, love)
- describe own physical appearance, prized possessions, prized activities, and prized behaviors

As evidenced by the students' participation in instruction with the 5 CHOICE folder activities

SA-B7 Students given instruction with (grade 6) CHOICE folder activities B7-SA-1 through B7-SA-4
Will demonstrate ability to:
- identify 2 feelings (belonging, rejection)

As evidenced by the students' participation in instruction with the 4 CHOICE folder activities

-Basic-

Job & Role Awareness

Performance Objectives

J&R-B1 Students given instruction with (grade K) CHOICE B1 Student Log and CHOICE folder activities B1-J&R-1 through B1-J&R-8
Will demonstrate knowledge of:
- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 6 workers in the ARTS AND HUMANITIES career cluster (actor, artist, dancer, musician, puppeteer, teacher) and 4 out of 5 workers in the HOMEMAKING career cluster (day care worker, housekeeper, janitor, tailor, waiter)
As measured by the students completing, with 90% accuracy, the CHOICE B1 test

J&R-B2 Students given instruction with (grade 1) CHOICE B2 Student Log and CHOICE folder activities B2-J&R-1 through B2-J&R-10
Will demonstrate knowledge of:
- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 6 workers in the HEALTH career cluster (ambulance driver/attendant, dentist, dietician, eye doctor/optometrist, family doctor, school nurse) and 4 out of 6 workers in the PERSONAL SERVICES career cluster (blacksmith, day care worker, gas station attendant, hairdresser/barber, television repairer, waitress)
As measured by the students completing, with 90% accuracy, the CHOICE B2 test

J&R-B3 Students given instruction with (grade 2) CHOICE B3 Student Log and CHOICE folder activities B3-J&R-1 through B3-J&R-7
Will demonstrate knowledge of:
- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 5 workers in the RECREATION career cluster (camp counselor, coach, tour guide, travel agent, usher) and 4 out of 6 workers in the TRANSPORTATION career cluster (airplane pilot, astronaut, mover, railroad engineer, school bus driver, trucker)
As measured by the students completing, with 90% accuracy, the CHOICE B3 test

J&R-B4 Students given instruction with (grade 3) CHOICE B4 Student Log and CHOICE folder activities B4-J&R-1 through B4-J&R-6
Will demonstrate knowledge of:
- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 5 workers in the AGRIBUSINESS career cluster (farmer, forest ranger, gardener, logger, miner) and 4 out of 6 workers in the PUBLIC SERVICE career cluster (fire fighter, librarian, mail carrier, nursing aide, police officer, sanitation worker)
As measured by the students completing, with 90% accuracy, the CHOICE B4 test

J&R-B5 Students given instruction with (grade 4) CHOICE B5 Student Log and CHOICE folder activities B5-J&R-1 through B5-J&R-9

Will demonstrate knowledge of:

- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 5 workers in the COMMUNICATION AND MEDIA career cluster (announcer, journalist, performer, photographer, telephone lineworker) and 4 out of 6 workers in the construction career cluster (architect, carpenter, cement mason, electrician, heavy equipment operator, plumber)

As measured by the students completing, with 90% accuracy, the CHOICE B5 test

J&R-B6 Students given instruction with (grade 5) CHOICE B6 Student Log and CHOICE folder activities B6-J&R-1 through B6-J&R-6

Will demonstrate knowledge of:

- on-the-job skills and tasks.
- tools and equipment, and/or
- training places

for 4 out of 6 workers in the MANUFACTURING career cluster (assembly worker, chemist, machinist, textile designer, union representative, welder) and 4 out of 5 workers in the MARKETING AND DISTRIBUTION career cluster (accountant, buyer, commercial artist, sales representative, trucker)

As measured by the students completing, with 90% accuracy, the CHOICE B6 test

J&R-B7 Students given instruction with (grade 6) CHOICE B7 Student Log and CHOICE folder activities B7-J&R-1 through B7-J&R-7

Will demonstrate knowledge of:

- on-the-job skills and tasks,
- tools and equipment, and/or
- work places

for 4 out of 5 workers in the BUSINESS AND OFFICE career cluster (actuary, assistant bank manager, cashier, clerical worker, computer operator) and 4 out of 5 workers in the MARINE SCIENCE career cluster (boat builder, commercial diver, fish hatchery technician, hydrographer, marine biologist)

As measured by the students completing, with 90% accuracy, the CHOICE B7 test

-Basic-

Decision Making/Goal Attaining Performance Objectives

DMGA-B1 Students given instruction with (grade K) CHOICE folder activities B1-DMGA-1 through B1-DMGA-9
Will demonstrate ability to identify 2 of the following steps in the DMGA process:
- what do you want?
- use resources (people)
- find out (helpers)
- know values (chonse, prize)
- goal

As evidenced by the students' participation in instruction with the 9 folder activities

DMGA-B2 Students given instruction with (grade 1) CHOICE folder activities B2-DMGA-1 through B2-DMGA-4
Will demonstrate ability to identify 3 of the following steps in the DMGA process:
- what do you want?
- use resources (people)
- know values (choose, prize)
- goal

As evidenced by the students' participation in instruction with the 4 folder activities

DMGA-B3 Students given instruction with (grade 2) CHOICE folder activities B3-DMGA-1 through B3-DMGA-8
Will demonstrate ability to identify 4 of the following steps in the DMGA process:
- what do you want?
- use resources (people)
- find out (obstacles, helpers, time)
- know values (choose, prize, act)
- plan
- act
- goal

As evidenced by the students' participation in instruction with the 8 folder activities

DMGA-B4 Students given instruction with (grade 3) CHOICE folder activities B4-DMGA-1 through B4-DMGA-8
Will demonstrate ability to identify 6 of the following steps in the DMGA process:
- what's going on?
- what do you want?
- find out (obstacles, helpers, time)
- decide
- act
- goal
- use resources (people, experience, reading)
- know options and outcomes
- plan
- check progress

As evidenced by the students' participation in instruction with the 8 folder activities

DMGA-B5 Students given instruction with (grade 4) CHOICE folder activities B5-DMGA-1 through B5-DMGA-8
Will demonstrate ability to identify 8 of the following steps in the DMGA process:
- what's going on?
- what do you want?
- use resources (people, experience, reading)
- find out (obstacles, helpers, time)
- know options and outcomes
- know values (choose, prize, act)
- decide
- plan
- act
- check progress
- modify goal (if necessary)

As evidenced by the students' participation in instruction with the 8 folder activities

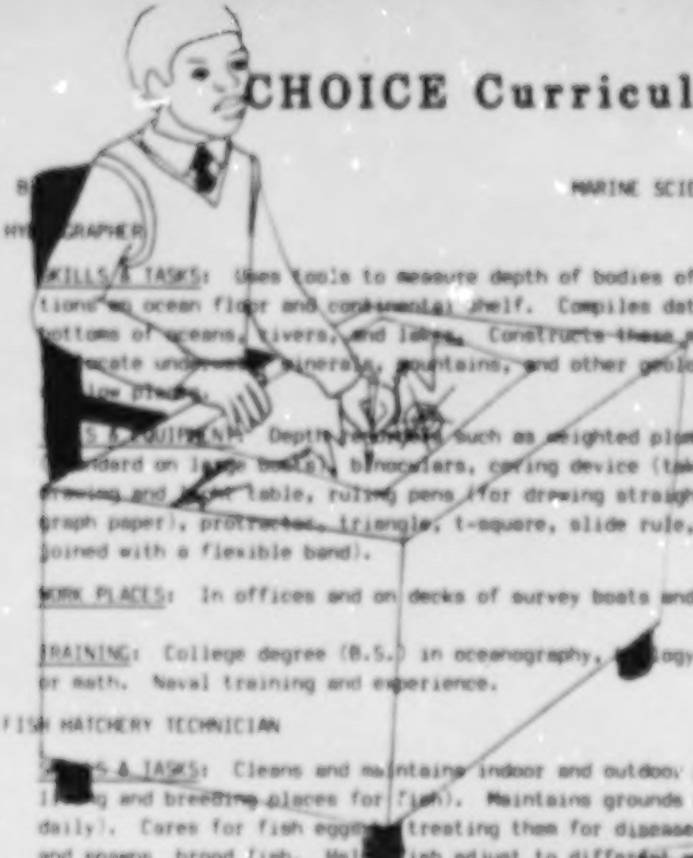
DMGA-B6 Students given instruction with (grade 5) CHOICE folder activities B6-DMGA-1 through B6-DMGA-9
Will demonstrate ability to identify the following steps in the DMGA process:
- what's going on?
- what do you want?
- use resources (people, experience, reading)
- find out (obstacles, helpers, time)
- know options and outcomes
- know values (choose, prize, act)
- decide
- plan
- act
- check progress
- modify goal (if necessary)

As evidenced by the students' participation in instruction with the 9 folder activities

DMGA-B7 Students given instruction with (grade 6) CHOICE folder activities B7-DMGA-1 through B7-DMGA-9
Will demonstrate ability to identify the following steps in the DMGA process:
- what's going on?
- what do you wnat?
- use resources (people, experience, reading)
- find out (obstacles, helpers, time)
- know options and outcomes
- know values (choose, prize, act)
- decide
- plan
- act
- check progress
- modify goal (if necessary)

As evidenced by the students' participation in instruction with the 9 folder activities

CHOICE Curriculum Content

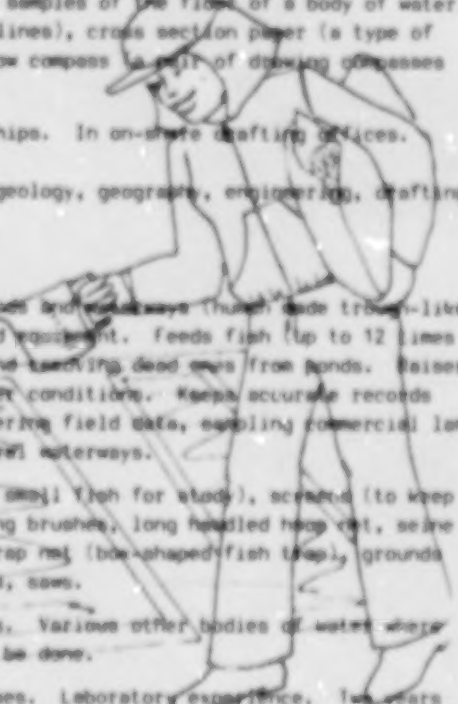


MARINE SCIENCE

HYDROGRAPHER

SKILLS & TASKS: Uses tools to measure depth of bodies of water, especially ocean. Studies rock formations on ocean floor and continental shelf. Compiles data for maps and charts which describe the bottoms of oceans, rivers, and lakes. Constructs these maps. Helps industrial scientists and others locate underwater minerals, mountains, and other geological features. Helps navigators to avoid shallow places.

TOOLS & EQUIPMENT: Depth recorders such as weighted plumb lines and more sophisticated sonographs (standard on large boats), binoculars, coring device (takes samples of the floor of a body of water), drawing and light table, ruling pens (for drawing straight lines), cross section paper (a type of graph paper), protractor, triangle, t-square, slide rule, bow compass (a pair of drawing compasses joined with a flexible band).



WORK PLACES: In offices and on decks of survey boats and ships. In on-shore drafting offices.

TRAINING: College degree (B.S.) in oceanography, biology, geology, geography, engineering, drafting, or math. Naval training and experience.

FISH HATCHERY TECHNICIAN

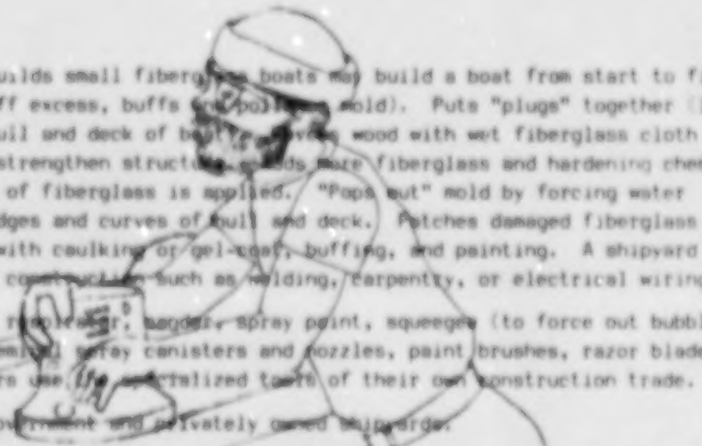
SKILLS & TASKS: Cleans and maintains indoor and outdoor ponds and raceways (human made trough-like living and breeding places for fish). Maintains grounds and equipment. Feeds fish (up to 12 times daily). Cares for fish eggs by treating them for disease and removing dead eggs from ponds. Raises and spawns brood fish. Helps fish adjust to different water conditions. Keeps accurate records of findings. Helps conservationists and biologists by gathering field data, sampling commercial landings of fish, and improving conditions in streams and other natural waterways.

TOOLS & EQUIPMENT: Slurp gun (suction tool used to capture small fish for study), screens (to keep fish from entering other ponds or waterways), screen-cleaning brushes, long handled hoop net, seine (a long net pulled behind a boat to crowd fish together), trap net (box-shaped fish trap), grounds maintenance materials such as shovels, hammers, screwdrivers, saws.

WORK PLACES: Government and privately owned fish hatcheries. Various other bodies of water where field studies useful to biologists and conservationists may be done.

TRAINING: High school biology, chemistry, and English courses. Laboratory experience. Two years college level study (fish and wildlife technician program). Four-year B.S. degree in biology or environmental studies.

BOAT BUILDER



SKILLS & TASKS: A boat builder who builds small fiberglass boats may build a boat from start to finish. Prepares mold (spreads wax, scrapes off excess, buffs and polishes mold). Puts "plugs" together (large pieces of shaped wood that form the hull and deck of boat). Covers wood with wet fiberglass cloth or mat. "Lays in" pieces of wood to strengthen structure. Adds more fiberglass and hardening chemicals. Squeezes out bubbles after each layer of fiberglass is applied. "Pops out" mold by forcing water between mold and hull. Grinds down edges and curves of hull and deck. Patches damaged fiberglass by sanding space around cut, filling with caulking or gel-coat, buffing, and painting. A shipyard worker may work on one aspect of ship construction such as welding, carpentry, or electrical wiring.

TOOLS & EQUIPMENT: Hard hat, gloves, respirator, sander, spray paint, squeegee (to force out bubbles), fiberglass mat, scissors, rollers, chemical spray canisters and nozzles, paint brushes, razor blades, caulking gun, buffer. Shipyard workers use the specialized tools of their own construction trade.

WORK PLACES: Boat building plants, government and privately owned shipyards.

TRAINING: Vocational school courses where plastics, wood and fiberglass are used are most helpful for small boat builders. Vocational school, college, armed forces and on-the-job training in carpentry, welding, plumbing, electronics, or architecture are most useful for shipyard workers.

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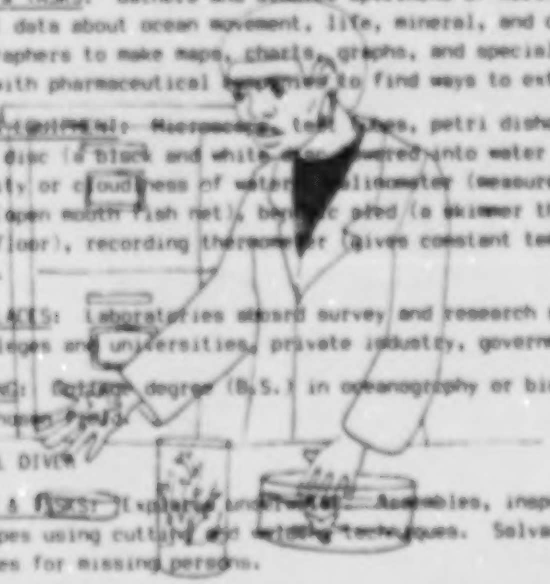
MARINE BIOLOGIST

SKILLS & TASKS: Gathers and studies specimens of marine life. Conducts surveys and experiments to collect data about ocean movement, life, mineral, and ore deposits, and floor contour. Works with hydrographers to make maps, charts, graphs, and special representations of the ocean and ocean floor. Works with pharmaceutical companies to find ways to extract drugs from marine plants and animals.

TOOLS & EQUIPMENT: Microscope, test tubes, petri dishes, culture mediums, Nansen bottle, oxygen meter, Secchi disc (a black and white disc lowered into water until it disappears. It's used to measure turbidity or cloudiness of water), salinometer (measures salt content of water), plankton net, otter troll (open mouth fish net), benthic sled (a skimmer that picks up ocean life along the benthos, or ocean floor), recording thermometer (gives constant temperature readings at different depths), coring device.

WORK PLACES: Laboratories aboard survey and research ships. Habitats, research facilities and labs at colleges and universities, private industry, government agencies. Naval bases and research facilities.

TRAINING: College degree (B.S.) in oceanography or biology. Graduate work leads to best positions in a chosen field.



COMMERCIAL DIVER

SKILLS & TASKS: Explores underwater. Assembles, inspects, and repairs underwater drill riggings and pipes using cutting and welding techniques. Salvages or recovers ships and goods underwater. Searches for missing persons.

TOOLS & EQUIPMENT: Lines or ropes, gas bags (to keep equipment or findings afloat), underwater flashlight and camera, diver's watch, air hose, depth gauge, emergency air tanks, diving suit (flexible at joints, with atmospheric pressure kept constant with surface pressure), heating unit for suit, EAB mask (like enclosed football helmet), insulating underwear.

WORK PLACES: Underwater in the dark in lakes, rivers, and oceans. In underwater habitats. On surface ships for private business and industry, armed forces, and other government agencies.

TRAINING: YMCA courses in scuba diving. Diver's Institutes (intensive six month training program). High school and college courses in science and mechanics are helpful.

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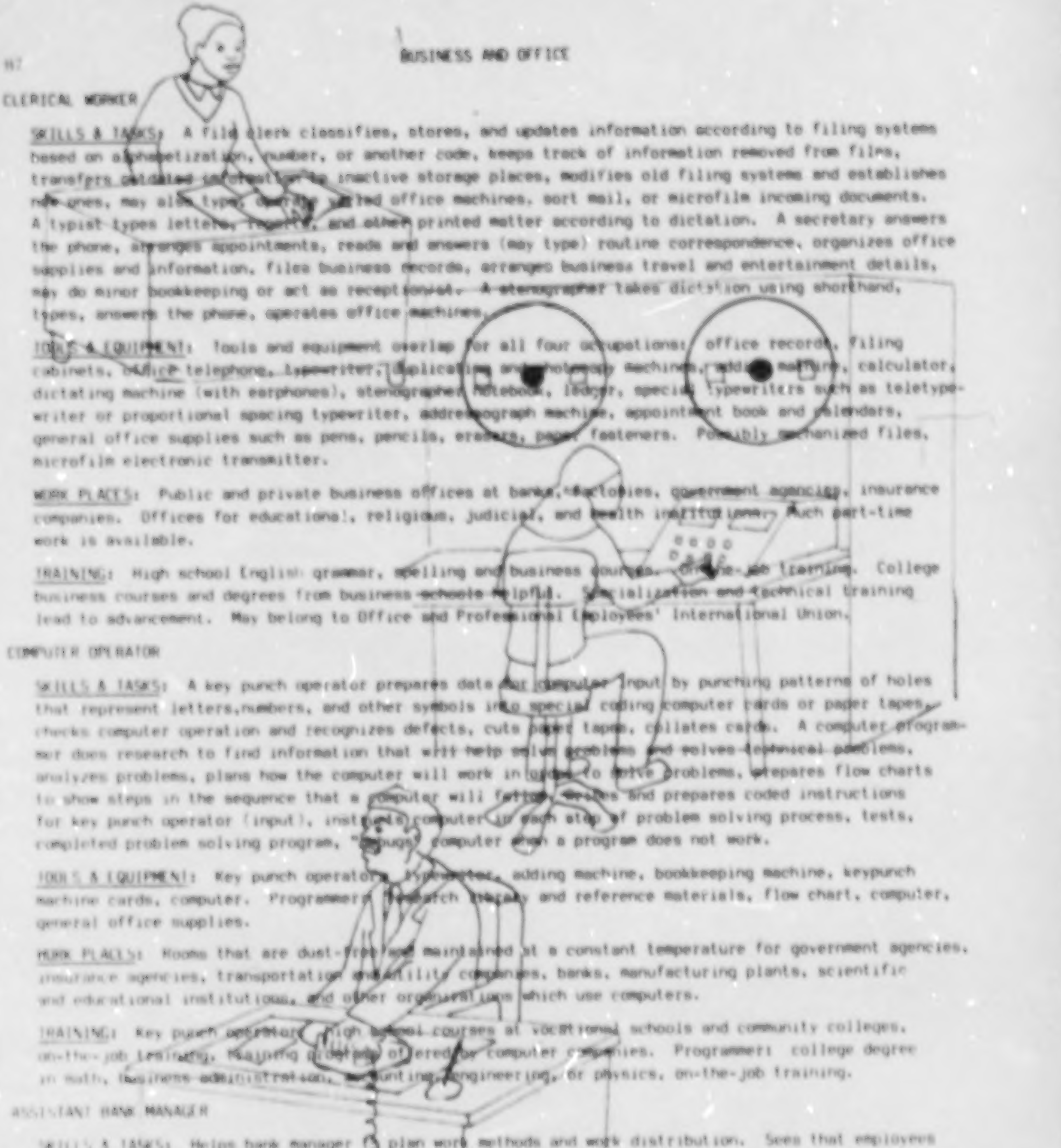

CLERICAL WORKER

SKILLS & TASKS: A file clerk classifies, stores, and updates information according to filing systems based on alphabetization, number, or another code, keeps track of information removed from files, transfers outdated information to inactive storage places, modifies old filing systems and establishes new ones, may also type, operate varied office machines, sort mail, or microfilm incoming documents. A typist types letters, reports, and other printed matter according to dictation. A secretary answers the phone, arranges appointments, reads and answers (may type) routine correspondence, organizes office supplies and information, files business records, arranges business travel and entertainment details, may do minor bookkeeping or act as receptionist. A stenographer takes dictation using shorthand, types, answers the phone, operates office machines.

TOOLS & EQUIPMENT: Tools and equipment overlap for all four occupations: office records, filing cabinets, office telephone, typewriter, duplicating and photocopy machines, adding machine, calculator, dictating machine (with earphones), stenographer notebook, ledger, special typewriters such as teletypewriter or proportional spacing typewriter, addressograph machine, appointment book and calendars, general office supplies such as pens, pencils, erasers, paper fasteners. Possibly mechanized files, microfilm electronic transmitter.

WORK PLACES: Public and private business offices at banks, factories, government agencies, insurance companies. Offices for educational, religious, judicial, and health institutions. Much part-time work is available.

TRAINING: High school English grammar, spelling and business courses. On-the-job training. College business courses and degrees from business schools helpful. Specialization and technical training lead to advancement. May belong to Office and Professional Employees' International Union.

COMPUTER OPERATOR

SKILLS & TASKS: A key punch operator prepares data for computer input by punching patterns of holes that represent letters,numbers, and other symbols into special coding computer cards or paper tapes, checks computer operation and recognizes defects, cuts paper tapes, collates cards. A computer programmer does research to find information that will help solve problems and solves technical problems, analyzes problems, plans how the computer will work in order to solve problems, prepares flow charts to show steps in the sequence that a computer will follow, writes and prepares coded instructions for key punch operator (input), instructs computer in each step of problem solving process, tests, completed problem solving program, "debugs" computer when a program does not work.

TOOLS & EQUIPMENT: Key punch operator: typewriter, adding machine, bookkeeping machine, keypunch machine cards, computer. Programmer: research library and reference materials, flow chart, computer, general office supplies.

WORK PLACES: Rooms that are dust-free and maintained at a constant temperature for government agencies, insurance agencies, transportation and utility companies, banks, manufacturing plants, scientific and educational institutions, and other organizations which use computers.

TRAINING: Key punch operator: high school courses at vocational schools and community colleges, on-the-job training, training programs offered by computer companies. Programmer: college degree in math, business administration, accounting, engineering, or physics, on-the-job training.

ASSISTANT BANK MANAGER

SKILLS & TASKS: Helps bank manager to plan work methods and work distribution. Sees that employees carry out work plans and procedures efficiently. Studies organization and management plans. Prepares budget estimates. Analyzes bank activity and efficiency. Co-manages bank services like loans, checking and savings accounts, trust services, credit cards, and safe deposits. Helps people choose and apply for bank services. Checks for errors in daily transactions. Secures locks and makes sure alarms are checked and serviced regularly.

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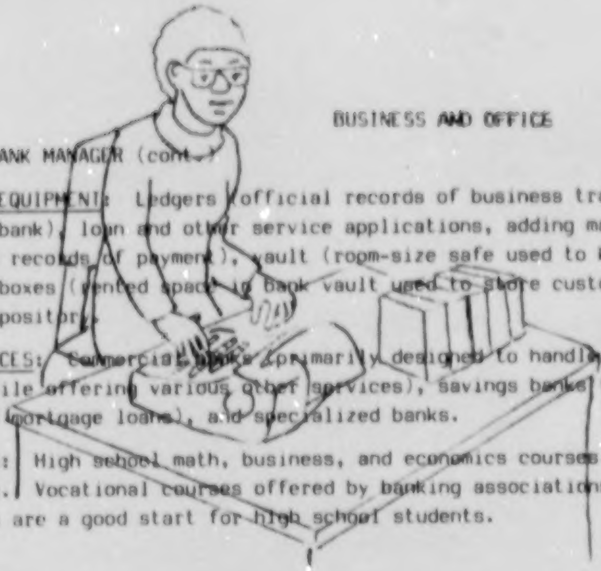
ASSISTANT BANK MANAGER (cont.)



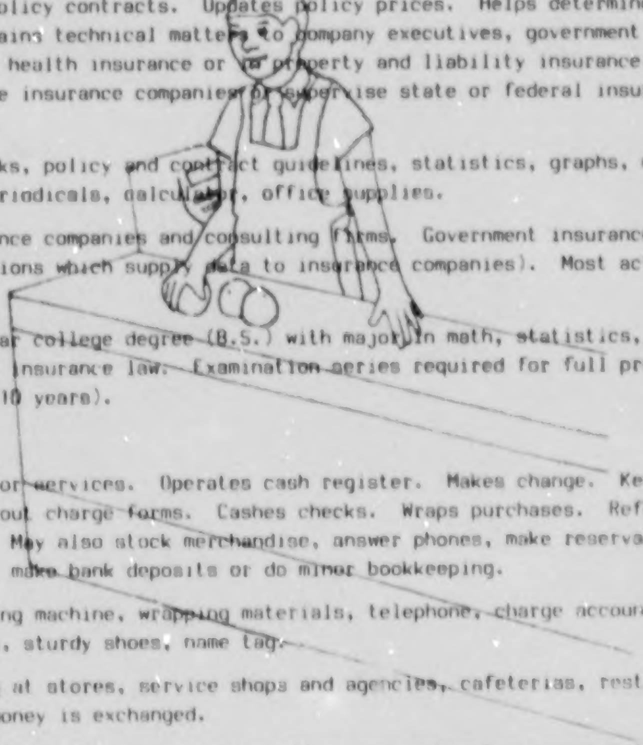
TOOLS & EQUIPMENT: Ledgers (official records of business transactions), accounts (records of money held by bank), loan and other service applications, adding machines, calculator, telephone, receipts (written records of payment), vault (room-size safe used to keep money and other valuables), safe deposit boxes (rented space in bank vault used to store customers' valuable goods), cash, checks, night depository.

WORK PLACES: Commercial banks (primarily designed to handle checking accounts and to make short term loans while offering various other services), savings banks (designed to support savings accounts and make mortgage loans), and specialized banks.

TRAINING: High school math, business, and economics courses. College business courses and management programs. Vocational courses offered by banking associations. On-the-job training. Summer jobs in banks are a good start for high school students.

ACTUARY

SKILLS & TASKS: Keeps informed about economic and social trends as well as legal developments that affect insurance practices. Designs and evaluates insurance and pension plans. Uses statistics to figure probabilities of death, illness, injury, unemployment, retirement, and various hazards. Calculates payment rates, and outlines effective policy contracts. Updates policy prices. Helps determine insurance company guidelines and practices. Explains technical matters to company executives, government officials, and public. May specialize in life and health insurance or in property and liability insurance. Government employed actuary may regulate insurance companies or supervise state or federal insurance and pension plans.



TOOLS & EQUIPMENT: Legal reference books, policy and contract guidelines, statistics, graphs, current claim and payment data, professional periodicals, calculator, office supplies.

WORK PLACES: Offices at private insurance companies and consulting firms. Government insurance program offices. Rating bureaus (associations which supply data to insurance companies). Most actuaries work in major cities.

TRAINING: High schoolmath plus four-year college degree (B.S.) with major in math, statistics, economics, business administration, accounting, or insurance law. Examination series required for full professional status. On-the-job training (5-10 years).

CASHIER

SKILLS & TASKS: Takes money for goods or services. Operates cash register. Makes change. Keeps records of receipts and checks. Fills out charge forms. Cashes checks. Wraps purchases. Refers complaints and suggestions to manager. May also stock merchandise, answer phones, make reservations, operate ticket machines or switchboard, make bank deposits or do minor bookkeeping.

TOOLS & EQUIPMENT: Cash register, adding machine, wrapping materials, telephone, charge account booklets, reservation calendars, pricelists, sturdy shoes, name tag.

WORK PLACES: Indoors, usually standing at stores, service shops and agencies, cafeterias, restaurants, banks, hotels, and other places where money is exchanged.

TRAINING: High school math. On-the-job training and practice adding and subtracting accurately and quickly. Business courses such as business math, bookkeeping and typing increase possibilities of advancement.

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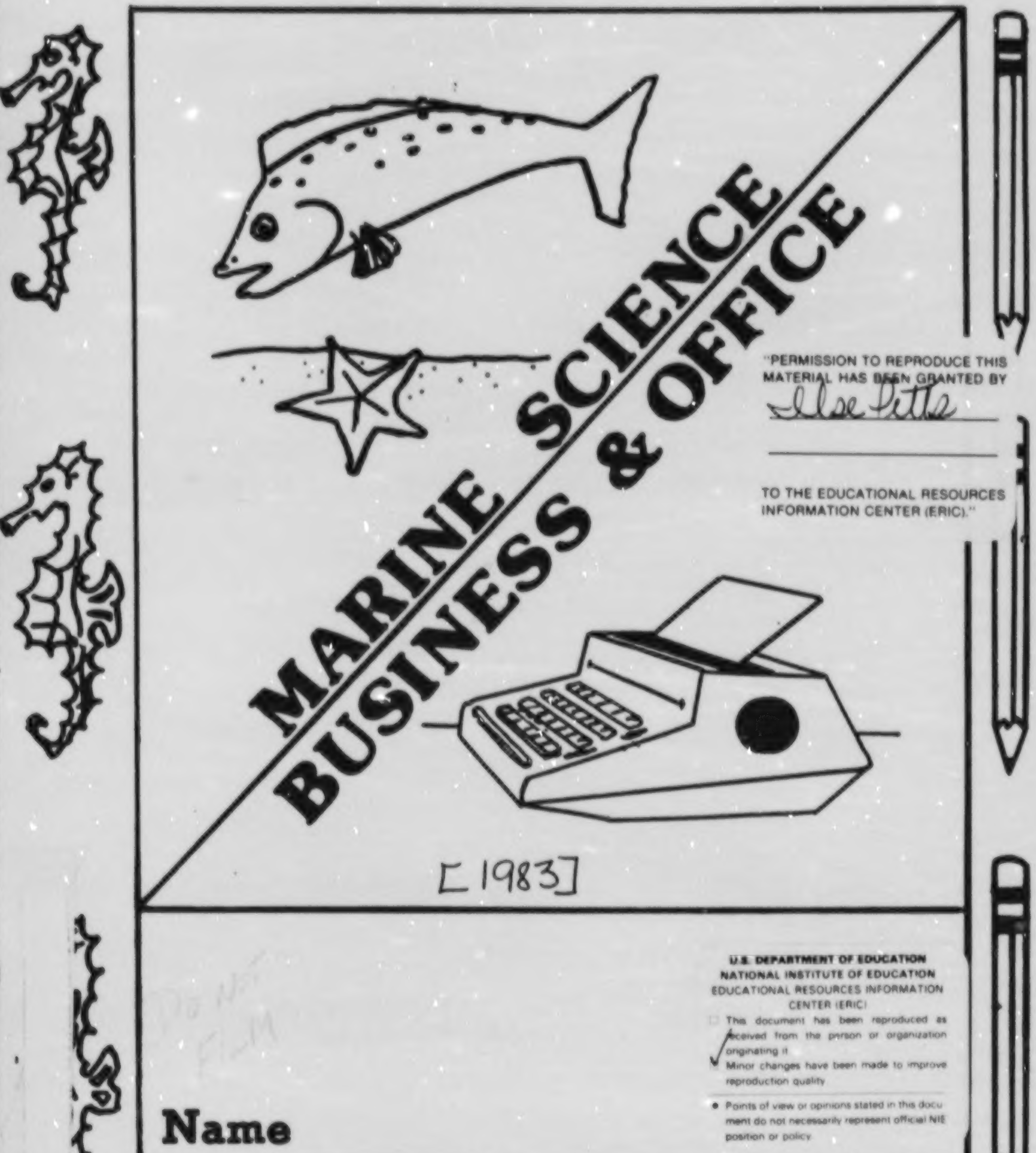
B7



MARINE SCIENCE
BUSINESS & OFFICE

[1983]

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Marine Science/Business & Office

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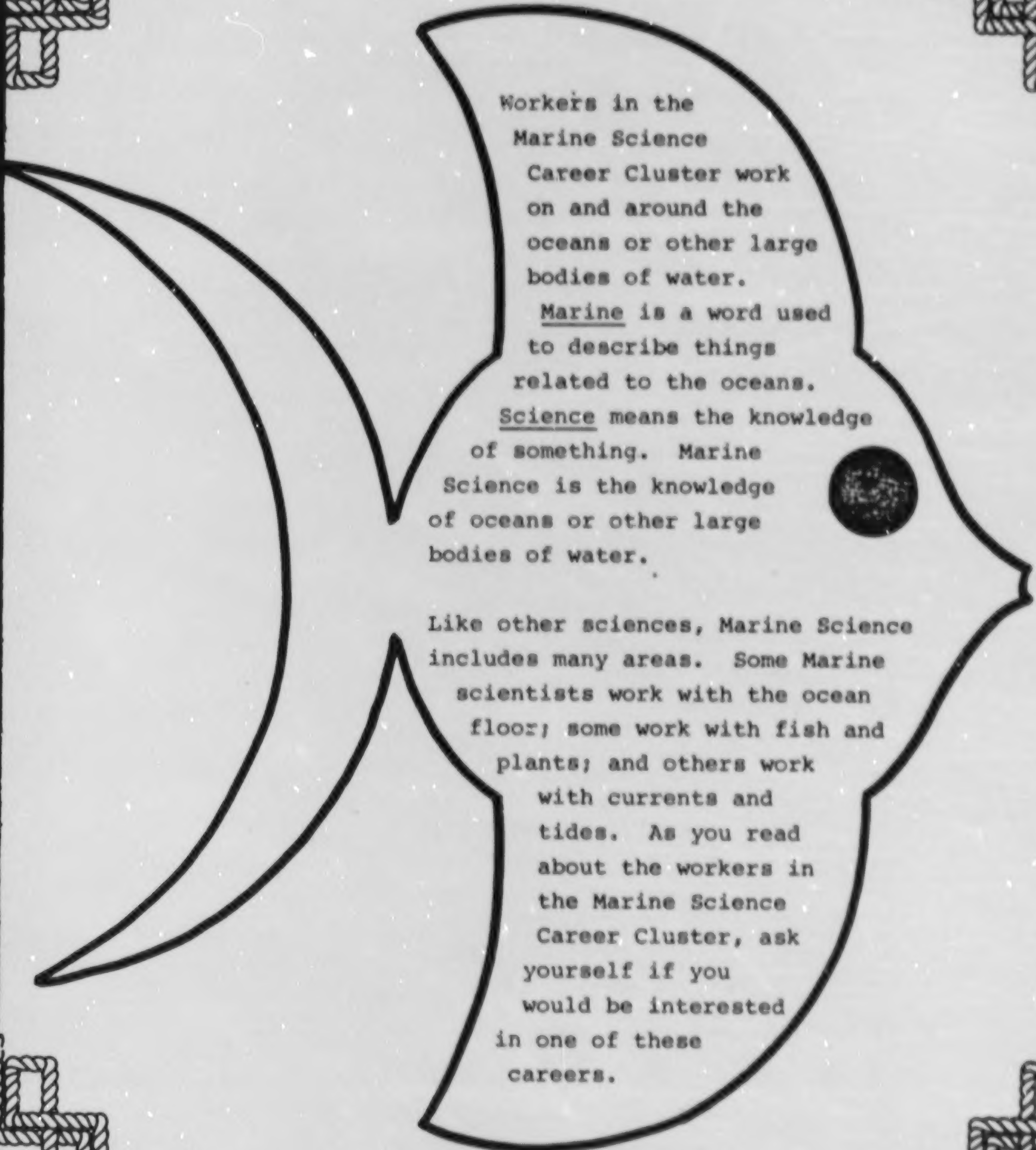
B-7 Marine Science



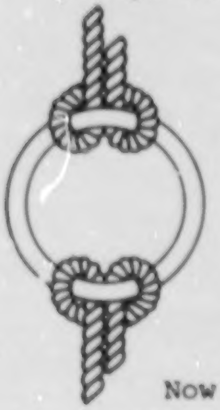
Workers in the Marine Science Career Cluster work on and around the oceans or other large bodies of water. Marine is a word used to describe things related to the oceans. Science means the knowledge of something. Marine Science is the knowledge of oceans or other large bodies of water.

Like other sciences, Marine Science includes many areas. Some Marine scientists work with the ocean floor; some work with fish and plants; and others work with currents and tides. As you read about the workers in the Marine Science Career Cluster, ask yourself if you would be interested in one of these careers.

Marine Plants and Animals

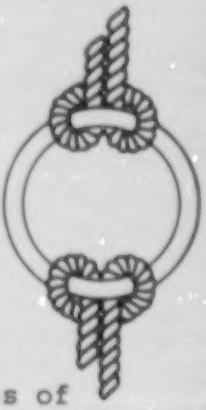
Marine is a word used to describe things having to do with the ocean. Marine animals are animals that live in the ocean. Marine plants grow in the ocean.

Below are some names of marine plants and animals. On the line beside each word, guess whether that word is the name of a plant or an animal. Write P if you think the word is the name of a plant, A if you think the word is the name of an animal.



___ algae
___ coral
___ kelp
___ octopus
___ sea anemone

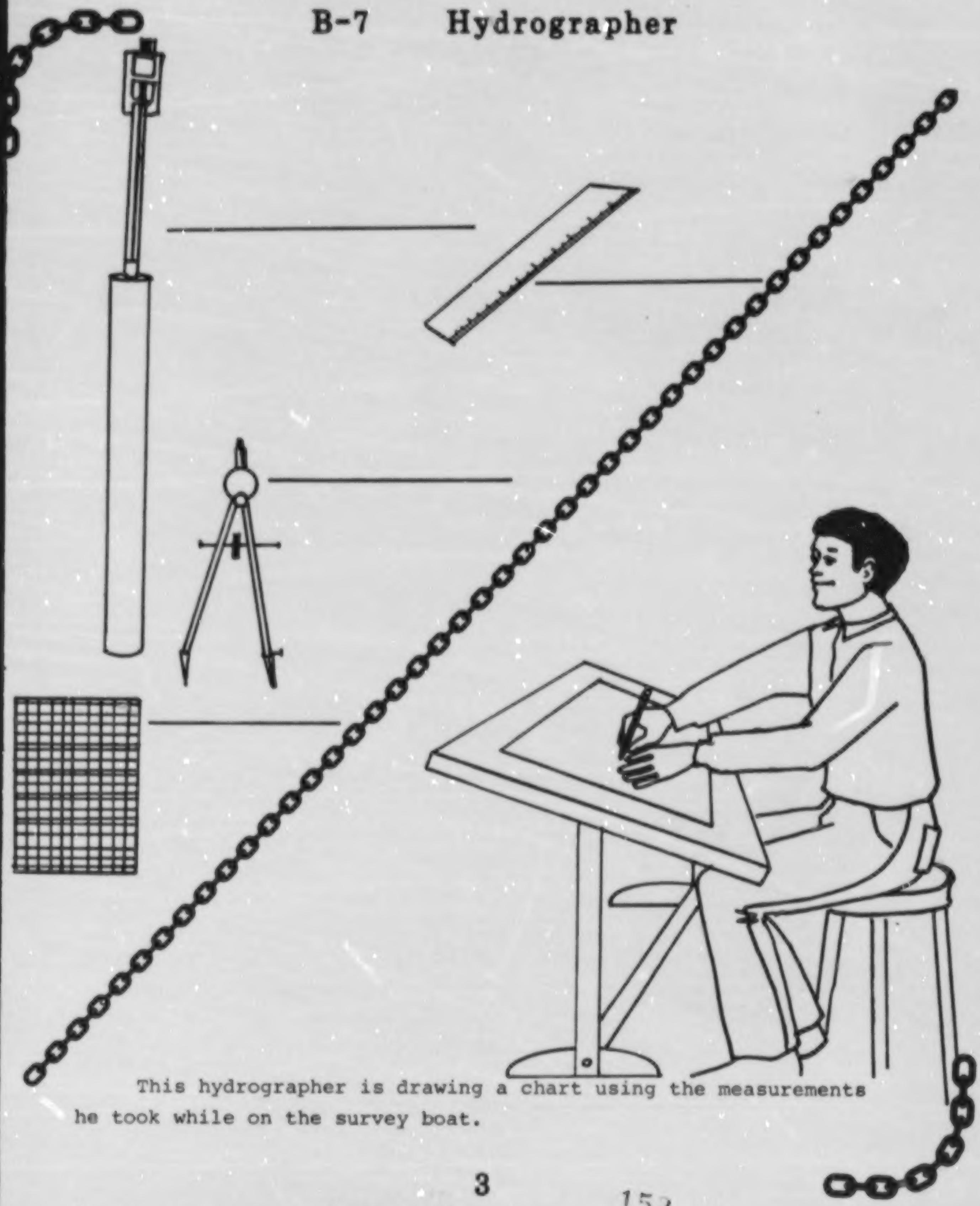
___ seahorse
___ seaweed
___ sponge
___ squid



Now find each word in your dictionary. Write the names of marine plants on the lines below the title Marine Plants and the names of animals on the lines beneath Marine Animals.

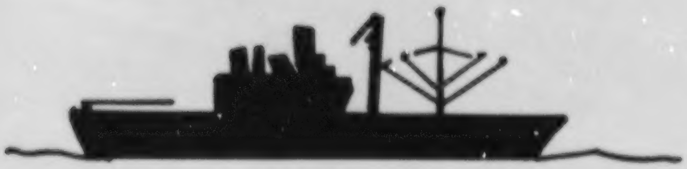
Marine Plants	Marine Animals
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________

B-7 Hydrographer



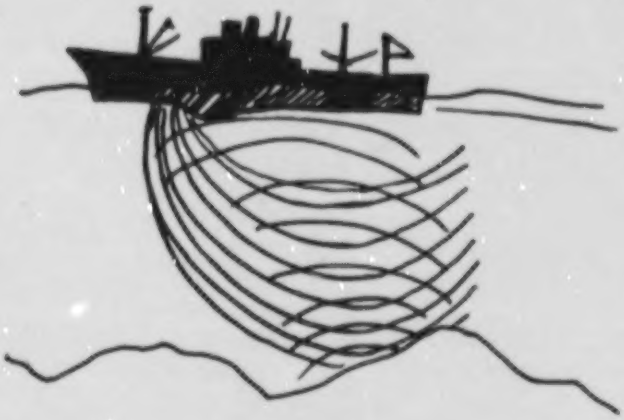
This hydrographer is drawing a chart using the measurements he took while on the survey boat.

Hydrographer



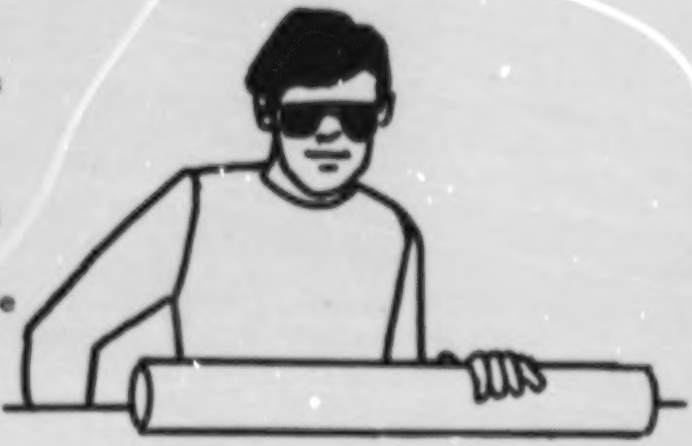
Glen Harwood is a hydrographer for a survey company. He measures the depth of water and distances under the water. Using these measurements, Glen makes charts or maps of the area he is studying. Boaters and shipping companies use Glen's charts to decide the best course to take. Since Glen's charts show water depth, boaters and shippers can avoid shallow areas where they might run aground.

"I really enjoy being on the survey boat to take measurements," explained Glen. "That's the best part of my job. Of course, sometimes a storm comes up suddenly, and being on the water in a storm can be dangerous."

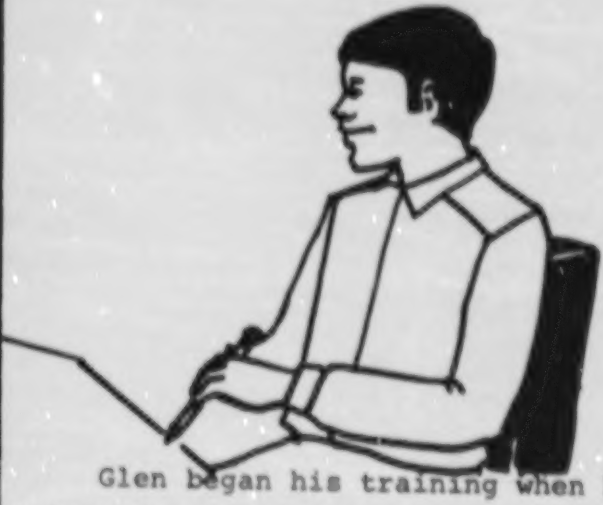


Glen uses measuring tools to measure the water depth. One of these tools is called a sonograph. This machine sends sounds down into the water. When the sounds hit the bottom, they bounce back and are recorded by the sonograph. The sonograph measures the time it takes for the sound to travel back to the boat. This tells Glen how far the sound traveled and therefore, the depth of the water.

Another tool that Glen often uses is called a coring device. This tool bores into the bottom of the body of water and removes a "core" of soil and rock. When Glen studies the core, he can tell what kind of soil and rock are underneath the water. This can give Glen clues to the type of minerals, like oil or gas, that could lie beneath the water.

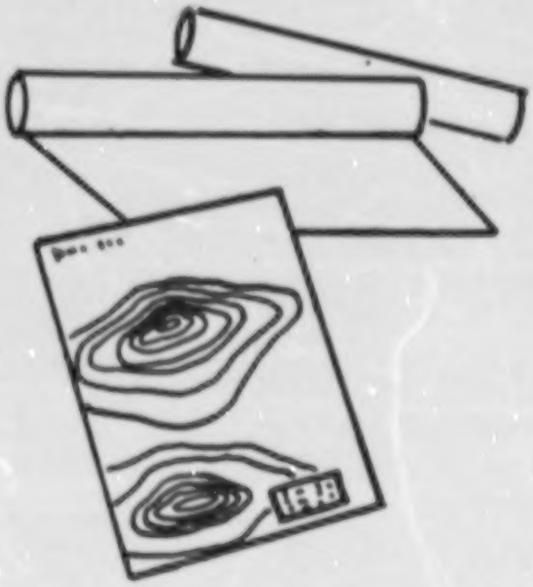


When Glen has all of the measurements he needs, he works in an office to draw the charts of the area he has measured. Charts are maps of areas that are under water. He uses a drawing table, special graph paper, pens, compasses, rulers, and other drawing tools to make his charts. He has to be very careful to put his measurements on the charts exactly.



Glen began his training when he joined the Navy after high school. His tests showed that he had an ability for chartmaking. When his time in the Navy was over, Glen went to college to finish his course of study. He got college credit for all the things he learned in the Navy.

"I really have two jobs," explained Glen. "First I work on the survey boat, taking measurements. Then I use my measurements to draw charts. I enjoy having different things to do."



Measuring Depth

Glen Harwood is a hydrographer. A big part of Glen's job is measuring water depths. Glen uses a sonograph to measure water depths exactly. When he has all the measurements for the area he is charting, Glen makes a chart to show water depths.

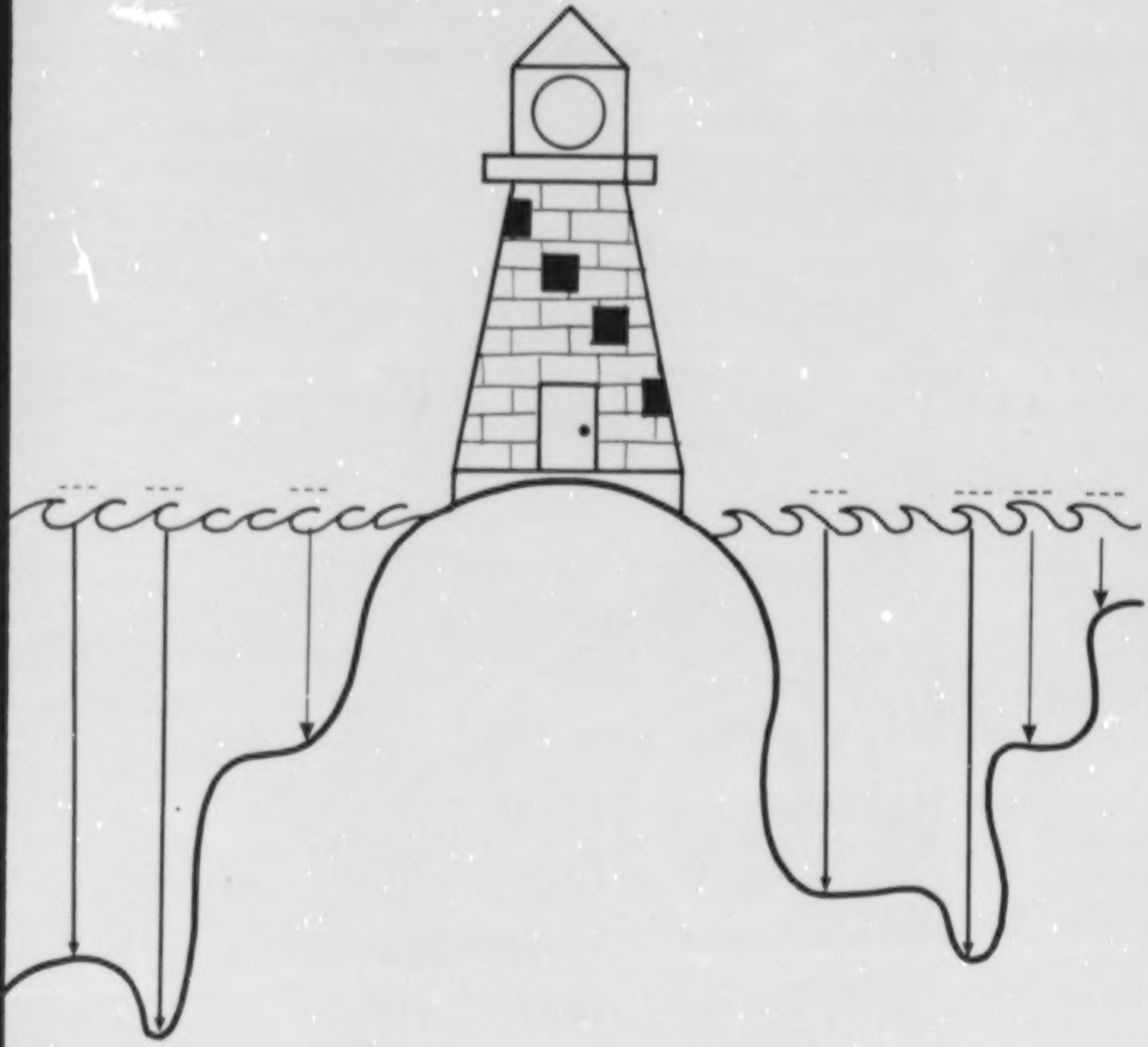
On the next page is a chart showing a cross section of a river Glen is charting. The arrows on the chart show places where Glen has used the sonograph to measure the depth of the water. Glen's chart uses a scale of ½" = 10ft. Measure each arrow. Then on the line above each arrow, write the depth of the water. Remember, every ½" is equal to 10 feet of water.

* *

Draw a map of your own using a different scale. Write the scale you are using on the chart. Have a classmate find depths on your chart.

Moon River Lighthouse

1/2" = 10'



Outline

Below is an outline telling about hydrographers. When the outline below is correctly done, it will tell about hydrographers. Finish the outline by writing the phrases on the right-hand side of your page in the correct blanks on the left-hand side of your page.

I. ______________________________
    A. ______________________________
    B. ______________________________

II. ______________________________
    A. ______________________________
        1. ______________________________
        2. ______________________________
        3. ______________________________
    B. ______________________________
        1. ______________________________
        2. ______________________________

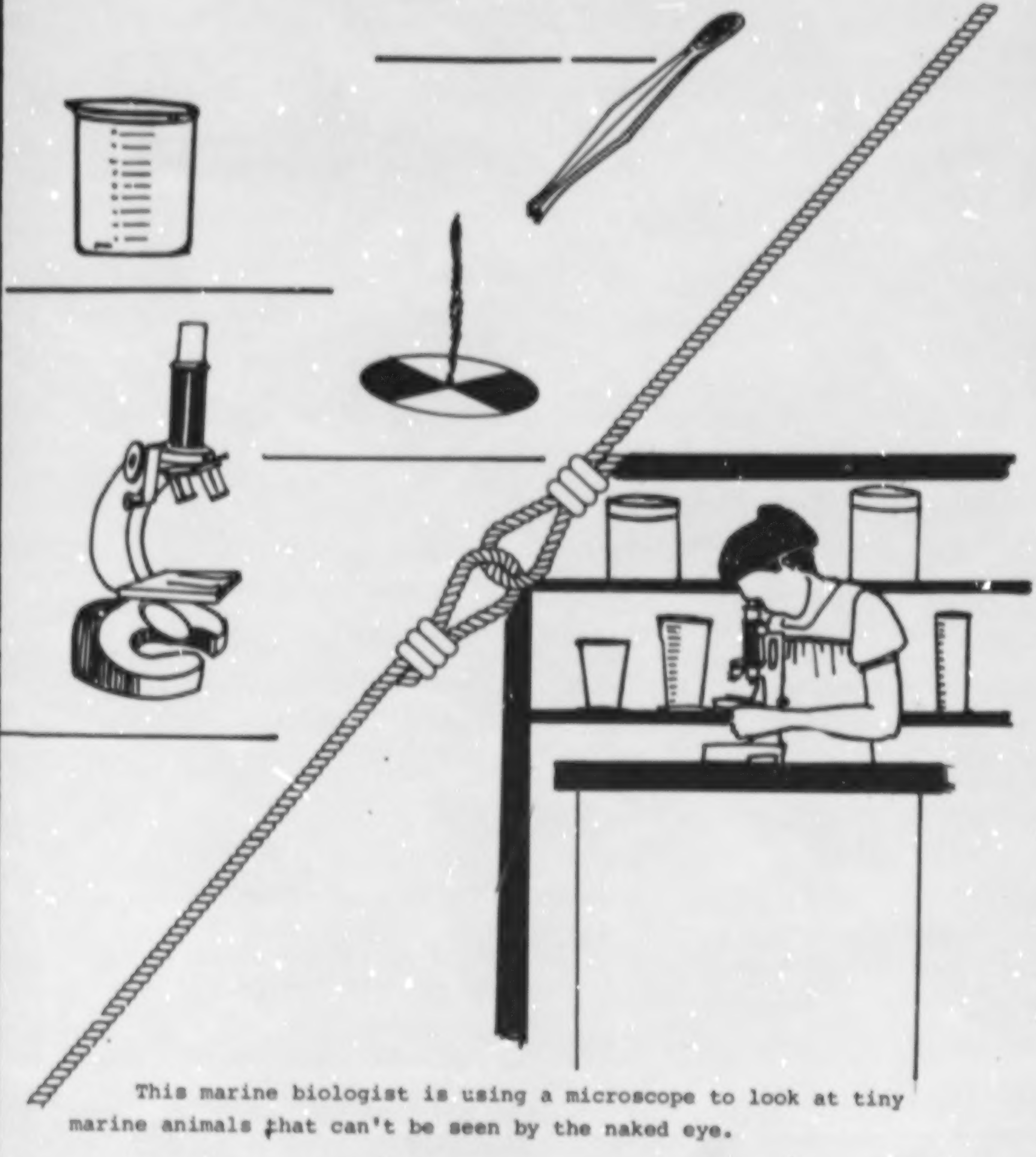
III. ______________________________
    A. ______________________________
    B. ______________________________
    C. ______________________________

survey boat
office
work places

graph paper
tools
ruler
drawing
compass
sonograph
measuring
coring device

college
high school courses
training
Navy

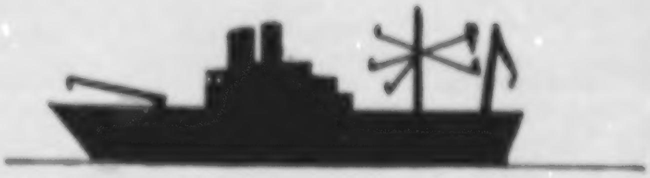
B-7 Marine Biologist



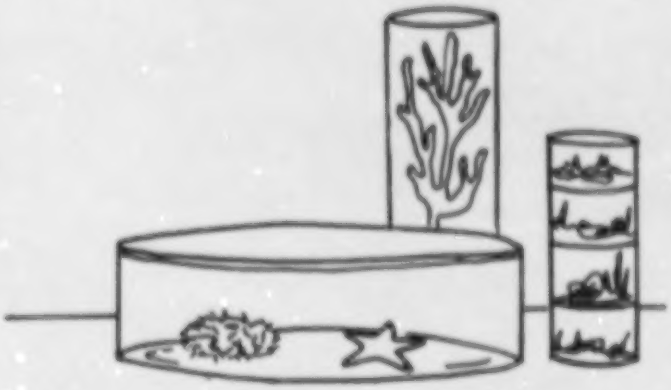
This marine biologist is using a microscope to look at tiny marine animals that can't be seen by the naked eye.

Marine Biologist

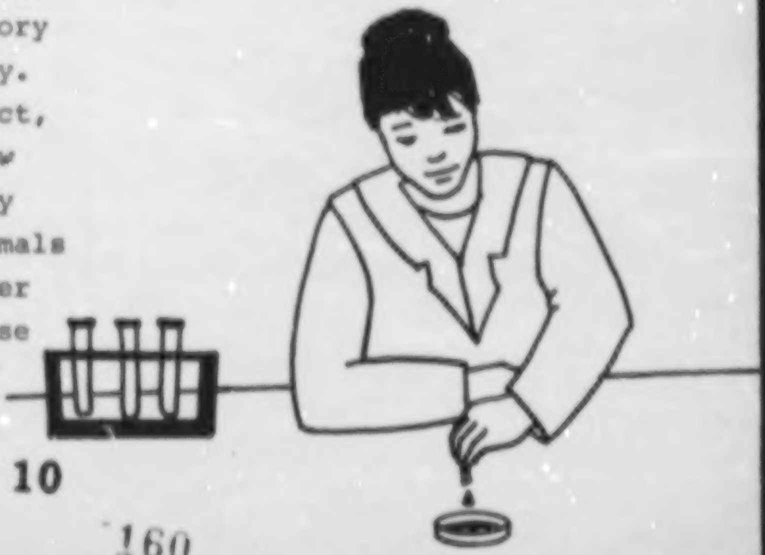
Karen Woods is a marine biologist. She works at a marine research station on the coast of Maine. Sometimes she works in a laboratory; sometimes she works "in the field." "In my case, working 'in the field' means working on a boat on the Atlantic Ocean," explained Karen. "The research vessel, or boat, is like a second home in the summertime. Sometimes I'm working aboard the vessel for a week or ten days at a time."

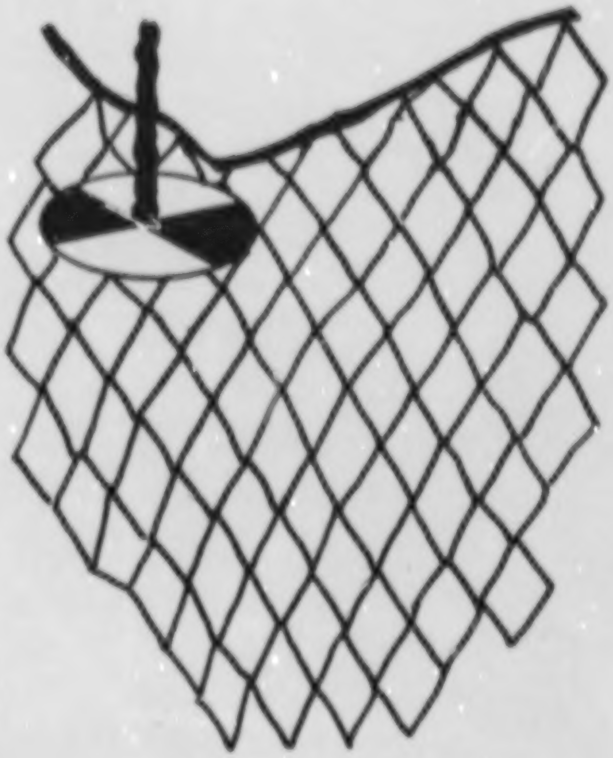


When Karen works on the research vessel, she collects plant and animal life from the ocean. The research vessel is "rigged" with many different kinds of nets for collecting plant and animal samples or specimens. She also measures the water's temperature, salt content, and cloudiness. The research vessel has a laboratory where specimens or samples, can be studied and stored. There is also equipment that will keep sea animals alive for the biologist to observe at a later time.



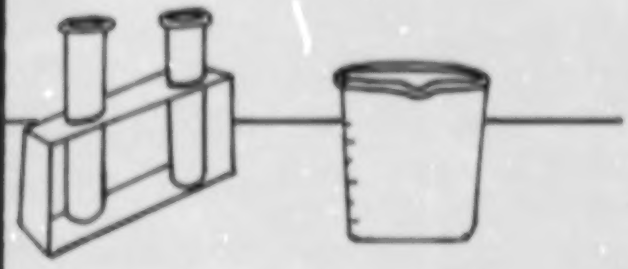
The marine biologist also works in a laboratory on shore. This laboratory has more equipment for detailed study. Here, the marine biologist may dissect, or take apart, sea animals to see how their organs work, or what foods they eat. The biologist may test sea animals for sicknesses or the effects of water pollution. Some marine biologists use sea plants and animals to make drugs that will help people.



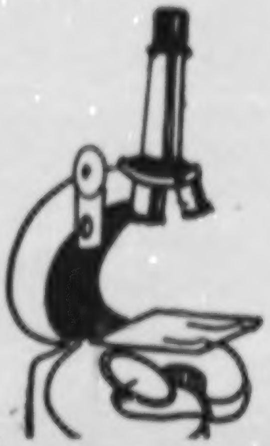


Karen uses many tools to do her work well. She knows how to use the different nets to collect different kinds of samples. She uses a Secchi dish to check the cloudiness of the water. This black and white disc is lowered into the water until it disappears. A recording thermometer tells Karen the water temperature at different depths. A salinometer measures the salt content of sea water; an oxygen meter measures the amount of oxygen in the water. When Karen knows these things, she is able to tell what kinds of animal and plant life may live in that part of the ocean.

In the onshore laboratory Karen works with laboratory equipment. She uses a microscope to look at tiny plants and animals that can't be seen with the naked eye. She uses a dissecting kit which has scalpels, or small knives, tweezers, and scissors. Karen uses a variety of glassware, chemicals and other lab equipment to do tests on plant and animal samples or specimens.



Karen went to college for four years to get her first degree in biology. She took many courses in science and math. She went on to graduate school to get a Master's Degree in Marine Biology. Her many years of college prepared Karen for an exciting, interesting career.



Temperature Chart

A recording thermometer measures the water temperature at different depths. The chart on the following page is a line graph showing water temperatures from a bay that Karen is surveying. Use the graph to answer the questions below.

1. What temperature was the water of Moonlight Bay at 55'?

   a. 68° c. 30°
   b. 54° d. 80°

2. At what depth would you find water of 64°?

   a. 15' c. 45'
   b. 30' d. 70'

3. Within what depth did the water temperature drop the quickest?

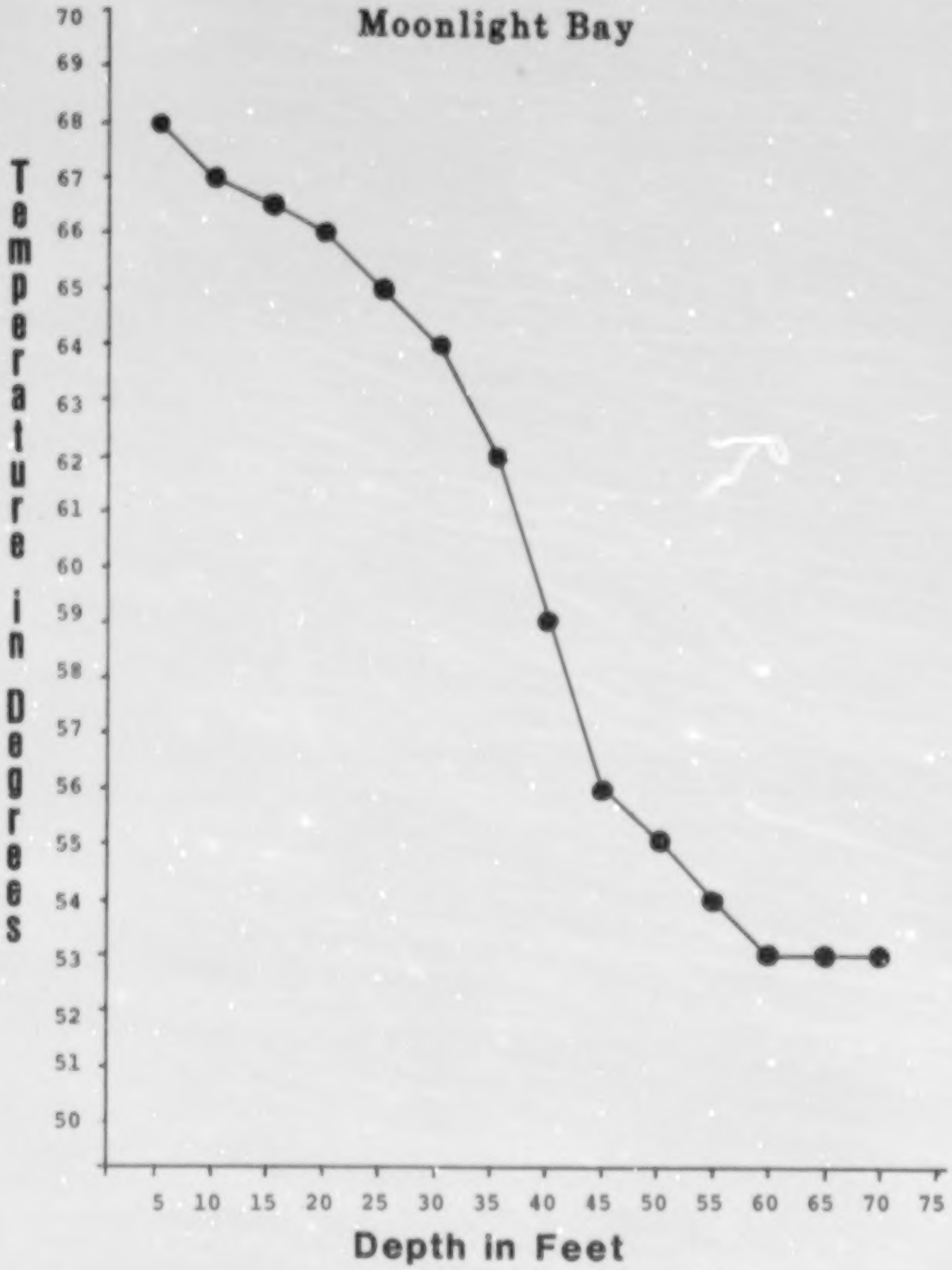
   a. 35'-40' c. 5'-10'
   b. 65'-70' d. 25'-30'

4. Within what depth did the water temperature drop the least?

   a. 5'-15' c. 55'-60'
   b. 30'-40' d. 60'-70'

5. Underline the true statements.

   a. Water near the top of the bay is warmer.
   b. The deeper the water, the warmer the temperature.
   c. The depth of the water has nothing to do with the temperature.
   d. The shallower the water, the warmer the water.


Moonlight Bay
Temperature in Degrees
70
69
68
67
66
65
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Depth in Feet

Main Idea

In each paragraph, underline the sentence that best tells the main idea of that paragraph.

1. Marine biologists usually work in two different places. They work "in the field" on research vessels, or boats, to collect samples of marine plants and animals. Some of the samples, or specimens, are preserved in chemicals. Some specimens are kept alive in tanks. When the specimens are collected, the marine biologist works at a laboratory on shore to do tests on the specimens.

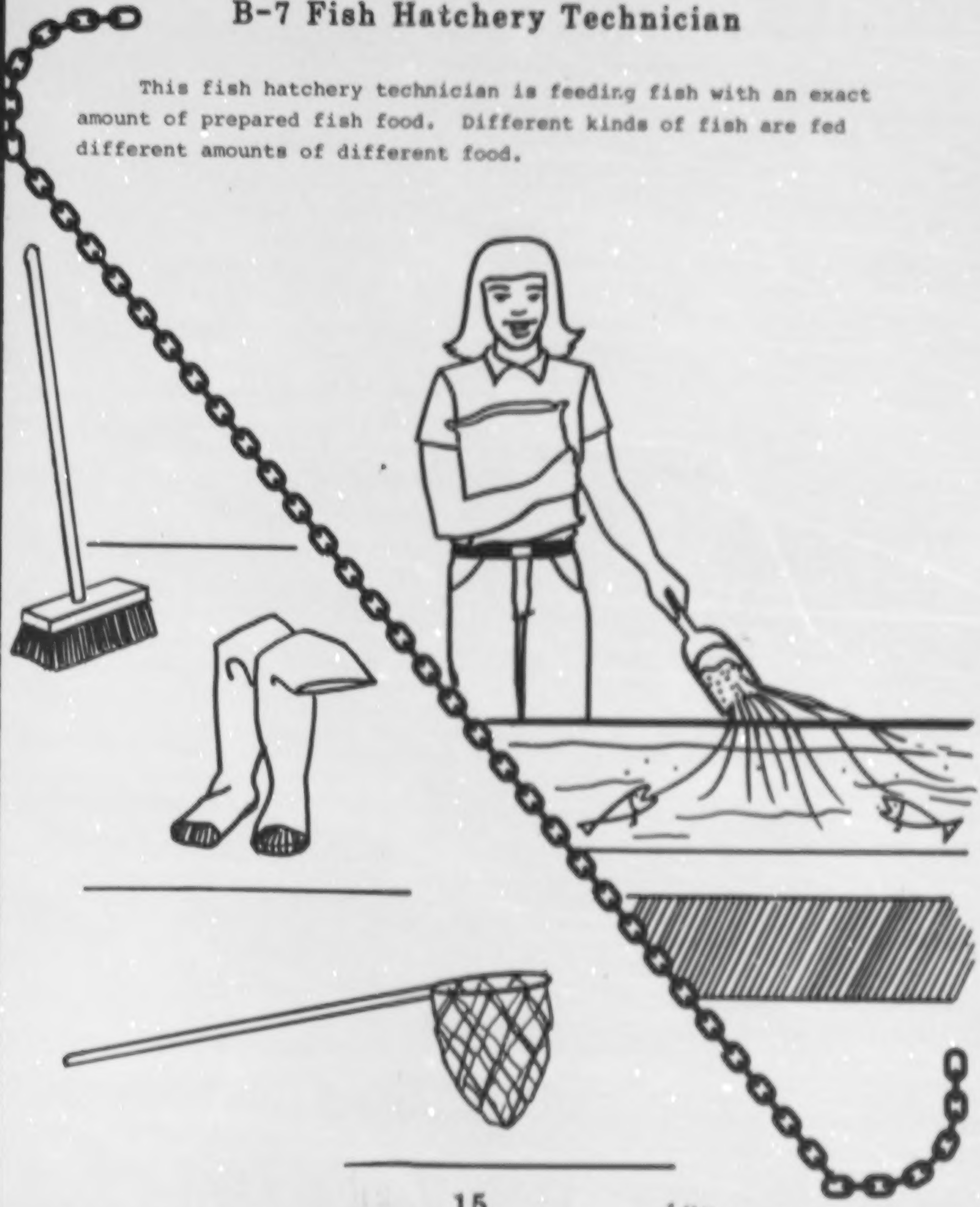
2. A salinometer is one of the tools used by marine biologists. It measures the amount of salt in the water. A Secchi dish is used to measure the cloudiness of the water. A recording thermometer measures the temperature of the water at different depths. Marine biologists use many tools to get the information they need.

3. Marine biologists use Secchi dishes to measure the cloudiness of water. The use of the Secchi dish is a simple matter. The Secchi dish is a disc that is painted with black and white sections. A rope is attatched to the center of the disc. The disc is lowered into the water until it cannot be seen. By measuring the rope, the biologists can tell how far into the water the Secchi dish was lowered. The farther down the Secchi dish can be seen, the clearer the water.

4. Taking science and math courses in high school is the first step toward becoming a marine biologist. In college, more science and math courses need to be taken. Some college courses may also have assigned field work. The student may actually work with an experienced marine biologist. The best jobs in marine science are given to those who go on to graduate school after college. Becoming a marine biologist takes several years of education after high school and a lot of studying.

B-7 Fish Hatchery Technician

This fish hatchery technician is feeding fish with an exact amount of prepared fish food. Different kinds of fish are fed different amounts of different food.



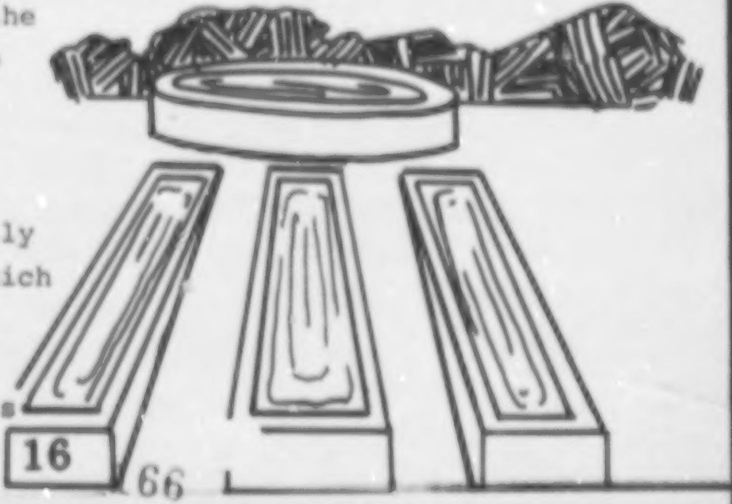
Fish Hatchery Technician

Molly Mason works in a state-operated fish hatchery. This hatchery was built to raise fish. When the fish are old enough, they are put into lakes and streams.

As a fish hatchery technician, Molly does many different things. Her most important responsibility is to care for the fish. "Most people don't understand about raising fish," explained Molly. "You don't just throw them a few worms and watch them grow."

While the fish are growing, they live in ponds. Fresh water runs between the ponds constantly, so the fish have fresh water all of the time. Screens separate the ponds, so that each group of fish stays in its own pond. The ponds have to be cleaned daily to help the fish stay healthy. The screens are brushed daily to remove algae and other material which clings to the screens. Each morning dead fish are taken from the ponds. Then hatchery technicians and laborers

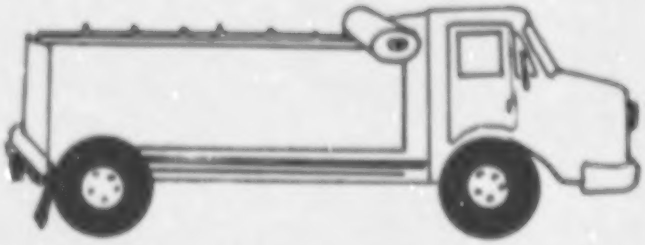
Fish are fed a special mixture of food which comes to the hatchery in bags. Different kinds of fish need different kinds of food. Small fish need finely ground food; large fish need a coarser food. Some fish ponds have automatic feeders installed at their edges. These feede are filled with food, usually once a day. At certain times during the day, the automatic feeders are turned on. The feeders throw the food across the surface of the ponds for the fish to eat. In ponds where there are no automatic feeders, hatchery workers use a scoop to throw the food to the fish. In all cases each pond of fish is given a carefully measured serving of food, several times a day.



put on hip boots and go into the ponds. They use long handled barn brooms to sweep sediment out the ends of the ponds. When fish do become sick, technicians must treat the pond with chemicals to help the fish become healthy again.

Molly got her training in a two-year fish and wildlife technician program at college. She took many science courses. "I'm glad I took so many math courses," explained Molly. "I use math every day to figure out growth rates of the fish, how much feed we have on hand, and how many fish are in each pond." When Molly finished college, she took an exam given by the state. As she gets more experience, she can take tests for better paying jobs with more duties.

When the fish are ready to be put into streams and lakes, hatchery technicians use long handled nets to put the fish into tanks on special trucks. The fish hatchery technicians drive the trucks to the place where the fish will be unloaded. Molly also supervises work on the hatchery grounds and buildings. Since people visit the hatchery every day, the buildings and lawns must look well-kept. Sometimes Molly takes high school and college students on tours through the hatchery. She tells them about raising fish and explains her job at the hatchery.



Reading Charts

Answer the questions below by looking at the charts on the following page.

1. What kind of fish live in pond #2? ________________, pond #4? ________________, pond #7? ________________.

2. In which ponds would you find rainbow trout?
____

3. How much feed was fed to pond #3 in the week of April 1 to April 7? ________________

4. How much feed was fed to all of the fish on April 5?
____

5. How much feed was fed to pond #6 between April 1 and May 12? ________________

6. The chart of mortality rate shows the number of dead fish taken from each pond each morning. On April 1 how many dead fish were taken from pond #2?
________________, pond #3? ________________, pond #9?
____

7. On which day was the mortality the highest in pond #9?
________________, pond #1? ________________

8. Which pond had the highest mortality rate on April 5?
________________, April 10? ________________

9. Which pond had the highest mortality rate for April 1-12?
____

Smallfry Hatchery Data Chart
Feeding Record

Weight in Pounds

Pond No.	Fish Type	April 1	2	3	4	5	6	7	8	9	10	11	12
1	Coho salmon	38	38	38	38	38	40	40	40	40	40	43	43
2	Coho salmon	25	25	27	27	27	27	27	27	27	29	29	29
3	Chinook salmon	10	10	10	10	10	11	11	11	12	12	12	12
4	Rainbow trout	45	45	45	48	48	48	48	48	48	48	48	48
5	Rainbow trout	45	45	45	45	48	48	48	48	48	48	48	48
6	Brown trout	32	32	35	35	35	35	37	37	37	37	39	39
7	Brown trout	18	18	18	18	18	18	18	18	21	21	21	21
8	Brown trout	4	4	4	4	4	4	4	4	4	4	5	5
9	Brook trout	6	6	7	7	7	7	7	7	7	7	7	7

Mortality Rate

Pond No.	Fish Type	April 1	2	3	4	5	6	7	8	9	10	11	12
1	Coho salmon	3	0	2	0	1	1	2	1	3	4	4	6
2	Coho salmon	2	1	4	4	4	2	2	1	4	0	2	1
3	Chinook salmon	4	3	6	3	10	0	0	2	1	3	5	4
4	Rainbow trout	6	2	1	1	3	6	4	0	0	2	3	2
5	Rainbow trout	0	4	9	2	2	1	2	4	6	3	0	3
6	Brown trout	1	1	0	6	4	4	5	6	2	0	4	3
7	Brown trout	4	7	3	4	3	8	9	10	8	7	3	2
8	Brown trout	3	0	4	7	6	2	1	4	0	0	3	4
9	Brook trout	7	8	8	8	9	7	10	14	18	22	20	18

Counting by Weight

Fish hatchery technicians use math daily. One way they use math is in counting fish by weight. This is done when fish are being loaded to be stocked in a lake or stream.

If the technicians need to stock 75,000 young salmon, counting out 75,000 small fish would take hours and hours. Here's how the technicians count them more quickly.

1. A net full of fish is taken from the pond.
2. The net and the fish are weighed.
3. The weight of the net is subtracted from the weight of the net and the fish. This tells the weight of the fish.
4. The fish in this netful are counted.
5. The number of fish is divided by the number of pounds. This tells the number of fish in each pound of fish.
6. Now the technician can tell how many pounds of fish he will need to get 75,000 fish.
7. Each netful of fish is weighed and loaded until the technician has reached the number of fish he needs.

Counting by Weight

Complete the problems below. Review the steps for counting by weight if you need to.

The fish weighed 6/lb. (6 fish = 1 pound of fish). How many fish would there be in 14 pounds of fish?

____

The technician weighed the netful of fish. The total weight was 33.8 pounds. The net alone weighed 2.4 pounds. What was the weight of the fish?

____

The net held 20 pounds of fish. There were 100 fish in the net. How many of these fish make a pound of fish?

____

The fish weighed 8/lb. How much did each fish weigh in ounces? (Hint: 1 pound = 16 oz.)

____

The technician weighed 200 pounds of fish into the tank. The fish were 62/lb. in weight. How many fish were in the tank?

____

Abbreviations

Hatchery technicians use measurement every day. They measure fish sizes, the number of fish in a pond, the amount of food to feed each group of fish, and the amount of water flowing through the ponds.

Below is a list of measurement words. The letters in the words are scrambled. Unscramble the letters to correctly spell the measurement words. Then choose the correct abbreviation for each measurement from the abbreviation box. Write the abbreviation for each measurement on the line beside the correctly spelled word.

chin ____________________

tofo ____________________

dray ____________________

lime ____________________

treem ____________________

meectinert ____________________

nipt ____________________

turaq ____________________

nolgla ____________________

triel ____________________

oncue ____________________

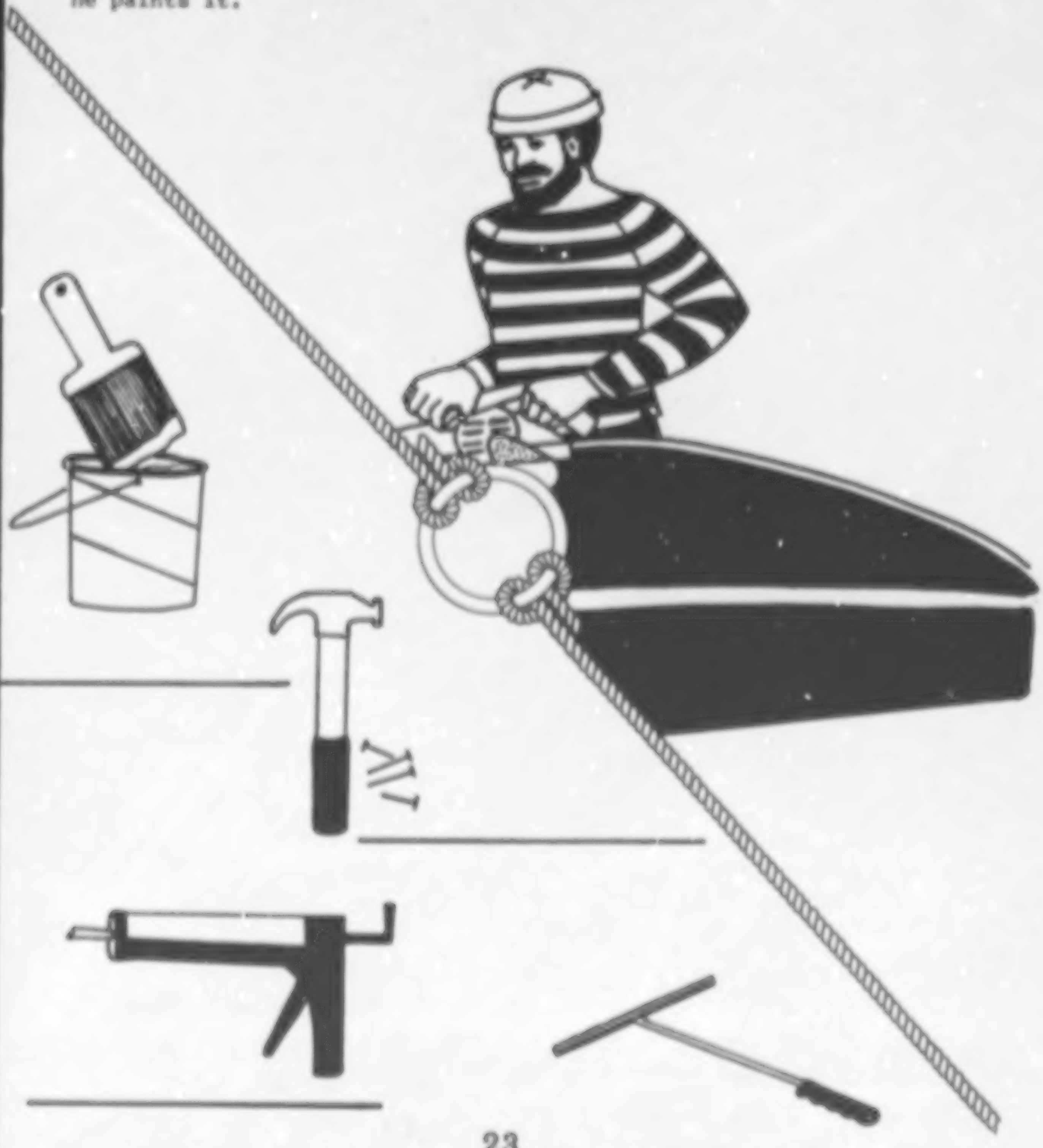
upnod ____________________

Abbreviation Bank

mi.	in.	oz.	yd.
lb.	qt.	l.	m.
ft.	pt.	ga.	cm.

B-7 Boat Builder

This boat builder is sanding the surface of the boat before he paints it.



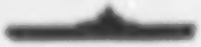
Boat Builder

Boat builders use a variety of materials to build different kinds of boats. Boats come in all sizes. Some have sails; some have motors; and some have paddles or oars. Some are built of wood; some of fiberglass; and others are made of metal. Other than military and freight ships, most are made of wood, fiberglass, or a combination of wood and fiberglass.

When building a wooden boat, boat builders use the same tools that carpenters use. Saws are used to cut the wood to length. Nails and sometimes special glues hold the wood in place. A putty-like substance called caulk is smeared between the boards of the boat to prevent water from leaking in. The boards are sanded smooth before paint is applied to the boat. A wet fiberglass cloth or mat is placed over the mold. Chemicals are sprayed onto the mat to make it harden. Then layer upon layer of fiberglass mat is added until the boat is strong enough to hold its shape. Sometimes pieces of wood are sandwiched between the layers of fiberglass for added strength.

After each layer of fiberglass mat is added, the boat builder uses a squeegee to force out air bubbles. Bubbles would weaken the boat. When the fiberglass is dry, the "boat" is removed from the mold, sanded smooth, and painted.

Since the fiberglass is made with chemicals, boat builders use respirators when they are applying fiberglass. The respirators fit over the builders' noses and mouths so they don't breathe the chemicals. In large shipyards, boat builders wear hard hats and heavy boots to protect themselves.



No special training is needed to become a boat builder. High school shop courses are helpful, but most of the training is on the job. Trainees begin by helping an experienced boat builder. As trainees gain experience, they are given more difficult jobs to do. Eventually, trainees can work on boats alone, or train new employees.

Synonyms

Boaters use special words for everyday things. For instance, the kitchen on a boat is called a galley; the bathroom is called the head; and the wall is called a bulkhead.

Words that mean the same are called synonyms. Circle the word pairs below that are synonyms.

absent-gone
accomplish-do
snore-breathe
sling-shot
beckon-call
tuna-fish
carton-box
thicket-grass
powerful-strong

location-find
comic-funny
soar-sink
demolish-wreck
disguise-face
false-untrue
impolite-rude
cling-peach
revolver-gun

* * *

Write a synonym for each of the words below. You may use a dictionary to help you.

astonish ____________________
vacant ____________________
boulder ____________________
desire ____________________
distant ____________________

entire ____________________
folk ____________________
glisten ____________________
haul ____________________
inquire ____________________

Logical Validity

In each paragraph, draw a line through the sentence which does not belong.

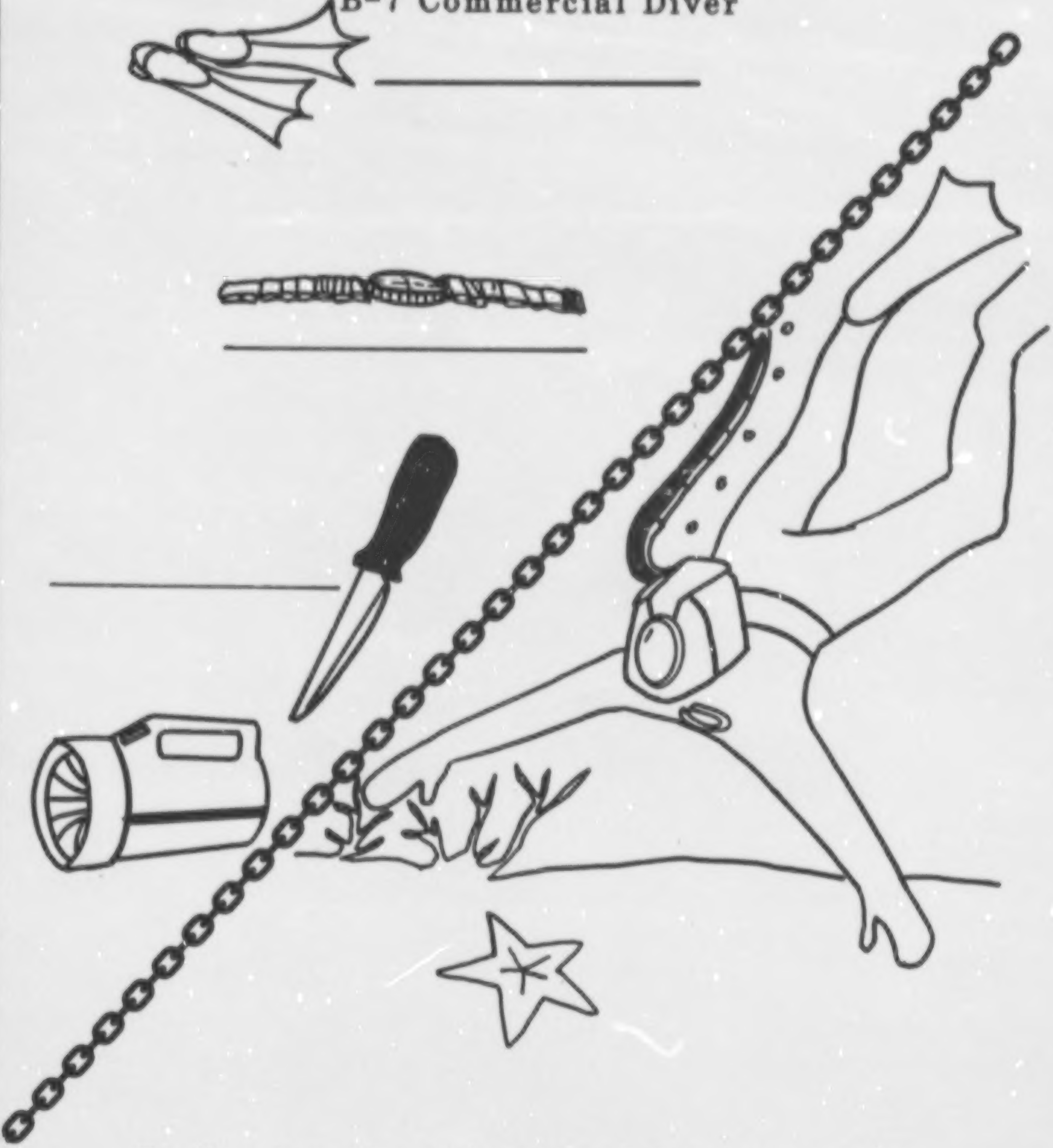
He was building a boat from wood. First, he cut boards to the length he needed to use. Then he used glue and nails to hold the boards together. His son liked to play with toy boats. When all of the boards were assembled, he used a putty knife to spread caulk over the cracks. He sanded the boat smooth after the caulk had dried. He painted the boat bright yellow.

Fiberglass is a man-made material that is valued for its strength and resistance to weather. Fiberglass is made by spinning fine threads of glass. These threads can be woven together to make a very strong cloth or "mat" of fiberglass. It is this "mat" that is used to build boats. The mat is pressed onto the boat "form." Then chemicals are sprayed onto the "mats." These chemicals cause the "mat" to harden in the shape of the boat "form." Some chemicals are used to kill weeds.

Ben was always good at his shop courses. He especially liked woodworking. When he graduated from high school, he knew he wanted to work in carpentry. He just barely passed his world history course. After applying for several jobs, Ben was employed at a boatyard. He began helping an experienced boat builder. After a few weeks, he was able to do some jobs by himself.

Boat builders use many of the tools that carpenters use. Many carpenters belong to a union. Hammers, saws, drills and sanders are some of the tools used by boat builders. Boat builders also use putty knives, scrapers and levels.

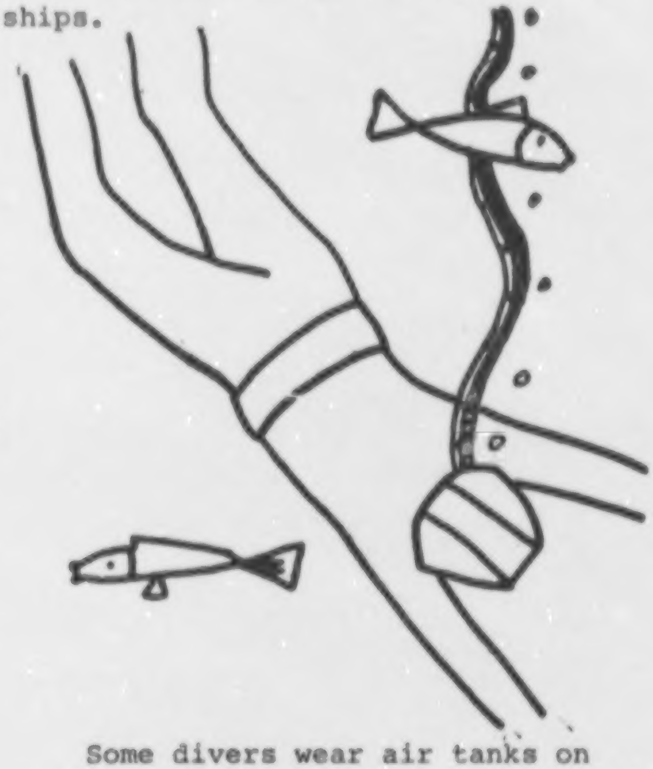
B-7 Commercial Diver



The diver is working at the bottom of the ocean. He wears a special suit and a helmet to protect his body. Air is pumped into the helmet through a hose.

Commercial Diver

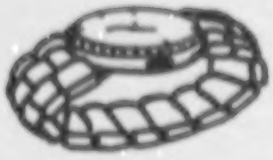
Commercial divers use special equipment that allows them to work under water in oceans, lakes, and rivers. Some divers work to find victims of boating and swimming accidents. Some divers work to build structures for oil or gas wells. Other divers go under water to find sunken ships and to recover the goods that sunk with the ships.

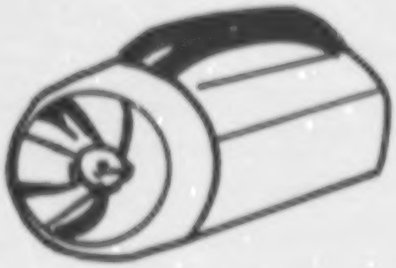


Some divers wear air tanks on their backs. These tanks have hoses and mouthpieces. When the divers put the mouthpieces in their mouths, they can breathe the air from the tanks. These divers don't always wear helmets. Sometimes, they wear rubber masks that cover their eyes and noses. The masks have clear fronts, so the divers can see.

Commercial divers wear special suits to protect their bodies from cold water. If divers need to go into very deep water, they wear suits and helmets that are pressurized. This means that the air inside the suit is the same pressure as the air above the water. The divers' helmets have hoses that run all the way to the boat from which they work. Air is pumped through the hoses, so that the divers can breathe in their metal or fiberglass helmets.

Besides suits, tanks, helmets, and masks, divers use other equipment to make their jobs safer and easier. They wear flippers on their feet to help them to move through the water more quickly. They wear special watches to help them keep track of time (it is very important that divers don't stay under water for too long). They use depth gauges to tell them how far under water they are (going too deep can endanger the divers' lives). Divers use flashlights that work under water to help them see. Some divers use underwater cameras to take pictures of things beneath the water. Most divers wear weighted belts to help them sink to the bottom. They carry knives to cut their hoses free if they get tangled in seaweed.





The Y.M.C.A. gives training courses in scuba diving. There are also Divers' Institutes which hold six month courses to train divers. However, divers must also know about the work they will do when they are diving. For instance, a diver who is building an oil "rig" must know about using torches to cut and weld metal while in the water.

Commercial diving can be an exciting career. At times, however, it can be very dangerous.

Acronyms

Some divers use scuba equipment when they dive. Scuba is a short way of saying self contained underwater breathing apparatus. A word like scuba, which is made from the first letters of other words is called an acronym (ak' rō nim). Scuba is an acronym for "self contained underwater breathing apparatus."

On the line beside each of the phrases below, write the acronym which stands for that phrase. Acronyms are listed in the box on the right hand side of your page.

_____ National Aeronautics & Space Administration
_____ North Atlantic Treaty Organization
_____ Strategic Arms Limitation Talks
_____ Absent Without Leave
_____ To Insure Promptness
_____ Mobile Army Surgical Hospital
_____ National Organization of Women
_____ State University of New York
_____ Surface to Air Missile
_____ Distant Early Warning System

SUNY
SALT
NOW
NASA
MASH
AWOL
SAM
TIP
DEWS
NATO

* *

Write acronyms for the following titles:

United Nations International Children's Emergency Fund _____
Congress of Racial Equality _____
South East Asia Treaty Organization _____
Women's Army Corps _____
Strategic Air Command _____

Equipment Scramble

Unscramble the words below to spell the names of divers' tools and equipment. Write the correctly spelled word on the line on the right hand side of the scrambled word. Then find the phrase that best describes that tool and write the phrase number on the line to the left of the scrambled word.

___ theelm ______________

___ shoe ______________

___ ari kant ______________

___ prifspel ______________

___ drevis twach ______________

___ thigeve blet ______________

___ efink ______________

___ thedp uggae ______________

___ meacra ______________

___ shlafthilg ______________

1. gives light under water
2. cuts underwater weeds from hoses
3. holds a supply of air
4. carries air from the surface to the diver
5. helps the diver sink to the bottom
6. keeps time under water
7. protects diver's head
8. tells how far down the diver is
9. takes pictures under water
10. help divers move quickly through the water

Marine Science Word Search

Words having to do with the Marine Science Career Cluster are hidden in the puzzle on the following page. The words are written from left to right, top to bottom, right to left and bottom to top. See how many words you can circle before checking the list below.

- air tank
- boat builder
- broom
- caulk
- commercial diver
- compass
- coring device
- diving suit
- drafting table
- fiberglass
- fish hatchery
- flippers
- helmet
- hose
- hydrographer
- marine biologist
- microscope
- net
- pond
- salinometer
- sander
- screen
- Secchi dish
- sonograph
- squeegee
- technician
- thermometer
- truck

S D T E N A S A L I N O M E T E R
A N E O D C M H Q S Q U E E G E E
N O H Y D R O G R A P H E R I J V
D P N M R E T E M O M R E H T C I
E B F O A G E P O C S O R C I M D
R B N O F I S H H A T C H E R Y L
T P E R T E C H N I C I A N D F A
E A E B I D I V I N G S U I T I I
M A R I N E B I O L O G I S T B C
L E C L G H P A R G O N O S K E R
E D S N T O V K L U A C R A S R E
H M K N A T R I A U T L C P X G M
O E Q G B S R E P P I L F M U L M
S F Z P L W K C U R T H I O Y A O
E F X S E C C H I D I S H C B S C
Y C O R I N G D E V I C E W J S V
R Z R E D L I U B T A O B A S K T

Write a Story

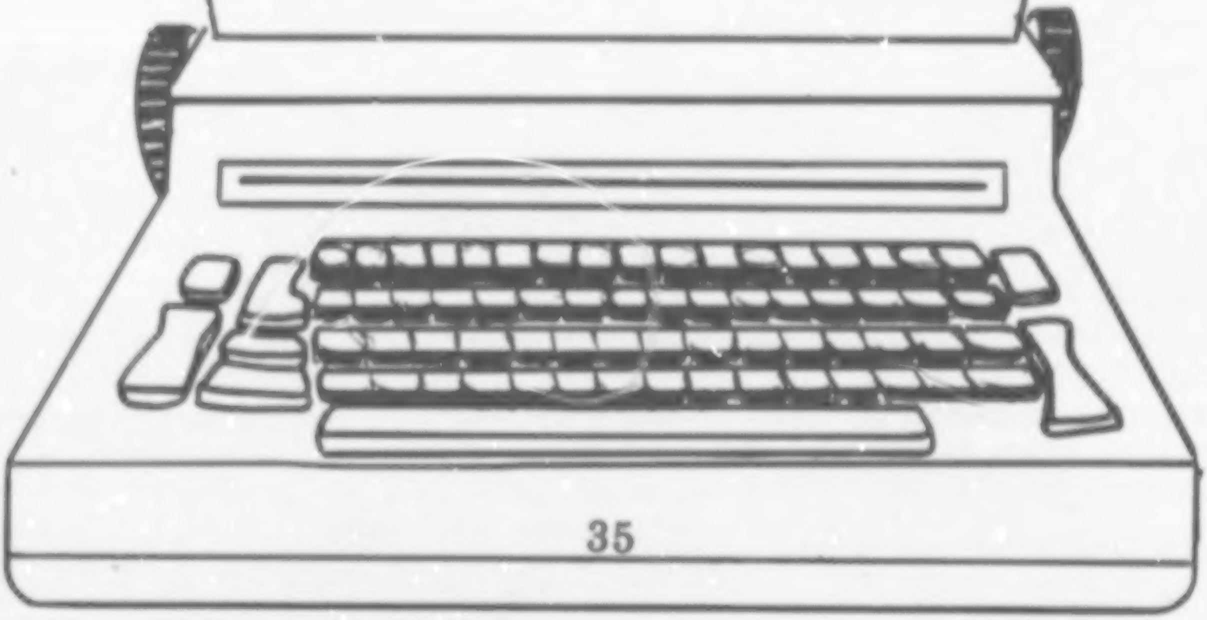
Write a story about your favorite worker in the Marine Science Career Cluster. Be sure to include why you think you would like to have this career.

Business and Office

Workers in the Business and Office Career Cluster work to organize and transfer facts, or information. Some workers gather information, some organize the information, some store the information, and some transfer the information to other workers.

Most of these workers work in office settings. Often, they have their own desks where they work and keep the supplies they use. Much of their time is spent working at desks within the office. Some offices are shared by several workers, and other offices are for just one worker.

Office workers' tasks may vary depending on where they work. The remainder of this unit will introduce you to several business and office workers who do different types of office work. See if any of these jobs would be of interest to you.



Classifying

Business and office workers spend most of their work times in offices. Below is a list of workers. Draw a circle around the workers who spend most of their work time in offices.

secretary
scuba diver
hotel clerk
typist
construction worker
bank teller
school secretary
mason
postal clerk
waitress

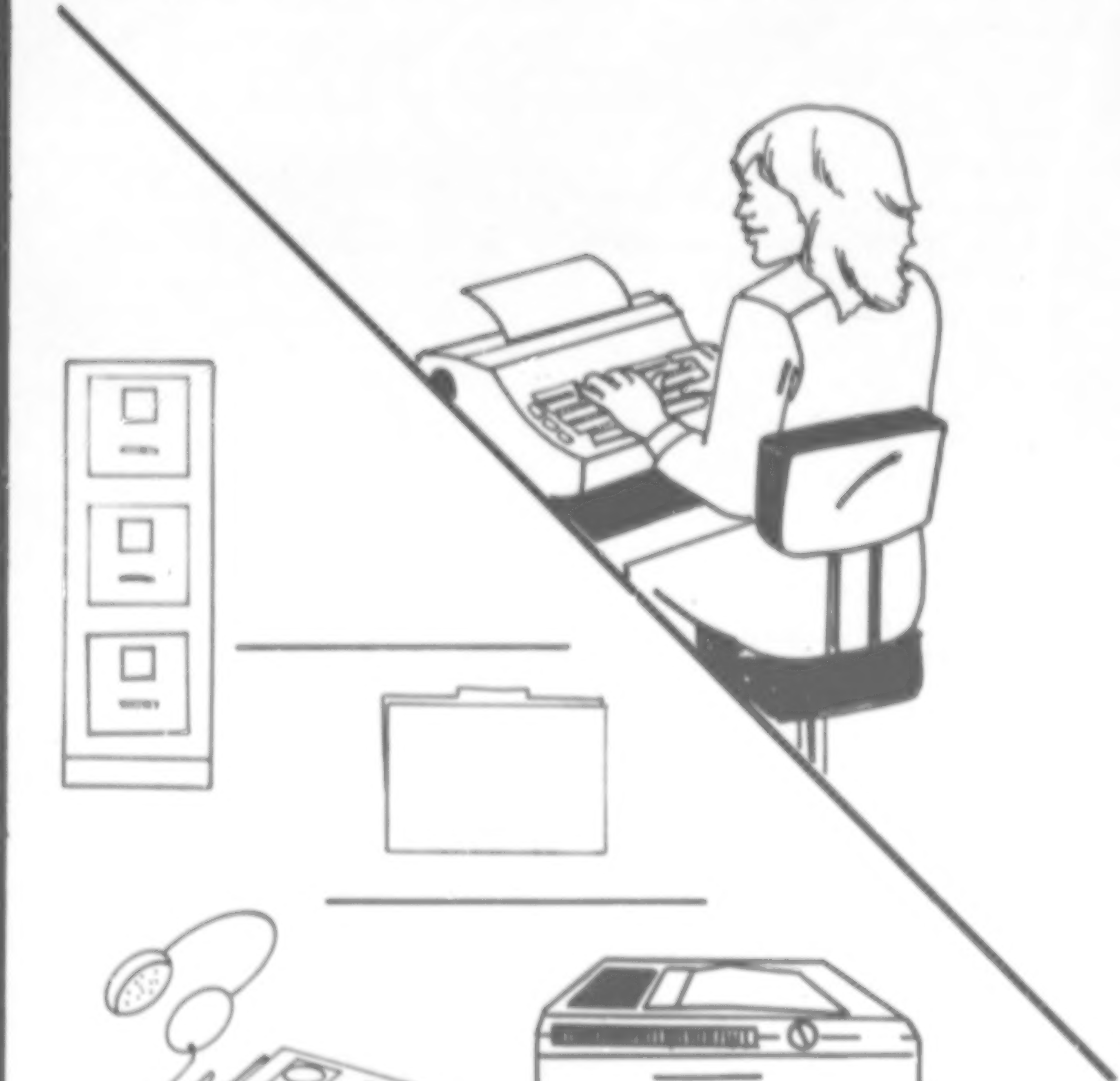
* *

Below is a list of tools and supplies. Draw a circle around those tools and supplies found in offices.

typewriter
shovel
crane
copier
pencil
desk
rake
paper clips
stapler
microscope
adding machine
cupcake pan
tape dispenser
telephone
calendar

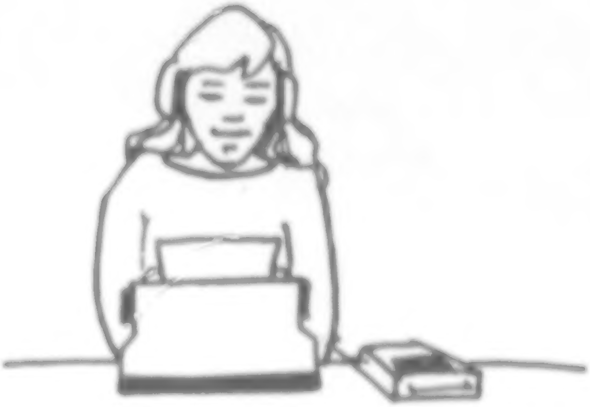
B-7 Clerical Worker

This clerical worker is typing a letter that she wrote in shorthand. A copy of the letter will be filed in the file cabinet behind her.



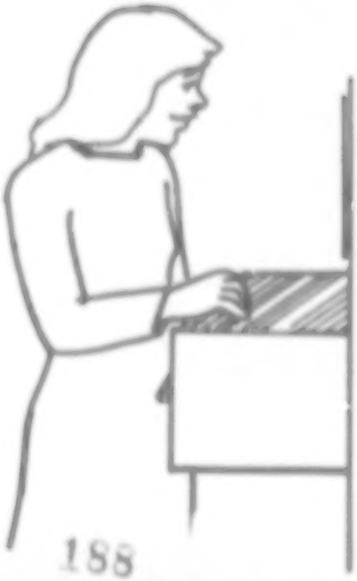
Clerical Worker

Clerical workers do a variety of jobs in offices. Clerical workers begin their careers in high school. They go into business colleges to improve their skills. Some take special courses to get higher paying jobs as legal or medical secretaries. Most business colleges have placement offices to help graduates find jobs. Although clerical jobs overlap, clerical work is done by four types of clerical workers.

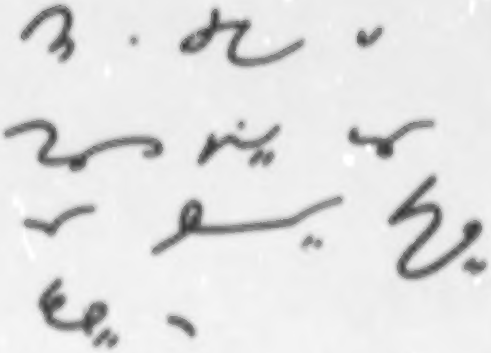


Typists type handwritten material. Typists can also type from tape recordings. The material to be typed is read into a dictaphone. The dictaphone records the message. The typists then replay the material and type as they listen. Typists using dictaphones usually wear headsets to listen to the tapes, so that other office workers are not disturbed. Typists may use other office machines like photocopiers adding machines, and word processors.

File clerks sort, organize, and store information. Usually, information is sorted into file folders. The file folders are labeled and kept in file drawers. There are many different file systems. Some folders are filed by alphabetical order, others by a number code, and still others may be color-coded. It is the file clerks' job to know the filing systems being used, to find needed files quickly, and to update or add information to files.



Stenographers use a special written language called shorthand to write down words as they are spoken. Stenographers listen and write as their employers dictate letters. Stenographers usually type the letters after taking the dictation in shorthand. Sometimes stenographers are asked to attend meetings to record what is said.



Secretaries do most of the jobs mentioned above. In addition, they act as receptionists to greet clients or visitors, answer the telephones, arrange appointments for employers, and organize business trips for other workers. Secretaries are usually in charge of office supplies and equipment and may supervise other office workers.

Most small offices have one or two clerical workers who do all of the jobs that need to be done in that office. Workers are trained by employers to do jobs in special ways. In large offices, clerical workers may do only one type of task. For instance, a typist may type all day long. Clerical work varies from office to office.

Classifying

You have read about four kinds of clerical work and the titles of the workers who do each kind of work. Although many offices have one or two workers who do all of the four jobs, pretend for a moment that you are in an office where each job is assigned to one person.

Each sentence below talks about one of the four clerical workers you read about. Fill in the blank in each sentence with the title of the worker who would be most likely to do that job. The job titles are:

file clerk typist secretary stenographer

1. Mr. James, the ___________________, used shorthand to quickly record what everyone said at the meeting.

2. The _______________________ sorted the papers and put them into folders.

3. The travel plans for the conference were made by our ____________.

4. The letter had been typed by our _______________________.

5. The ______________________ changed the ribbon in her typewriter before starting the next letter.

6. The ______________________ typed the letter that was written in shorthand.

7. The ______________________ made a 10:00 appointment for her employer.

8. The files were organized in alphabetical order by the _________________________.

9. Yesterday, the ______________________ ordered more paper clips, staples, and pens.

10. The _____________________ put on her headset and pushed the switch on her dictaphone.

Equipment and Supplies

Secretaries are usually in charge of office equipment and supplies. Office equipment is the name given to the machines used in offices. Supplies are items like paper, pencils, and staples that are used frequently and must be replaced frequently.

Below is a list of things you might find in an office. Label those things that are office supplies with an S. Label office equipment E.

___ paper clips

___ stapler

___ staples

___ paper

___ typewriter

___ rubber bands

___ typewriter ribbons

___ photocopier

___ eraser

___ pencil sharpener

___ desk

___ pen

___ desk lamp

___ office chair

___ file folder

___ file cabinet

___ typewriter table

___ tape

Filing

One kind of filing system is alphabetical. Below is a list of names of employees at a large furniture factory. The file clerk will set up a filing system, listing the names, last name first, in alphabetical order.

Rewrite the names below putting them in alphabetical order. Remember to alphabetize last name first.

1. Linda C. Johnson ______________________________
2. Wallace E. Dunham ______________________________
3. John E. Arrowsmith ______________________________
4. Mary J. Brown ______________________________
5. William B. Adams ______________________________
6. Levina V. Johnstone ______________________________
7. Gerald M. George ______________________________
8. Levi W. Burton ______________________________
9. Frederick A. Johnston ______________________________
10. Mary L. Brown ______________________________

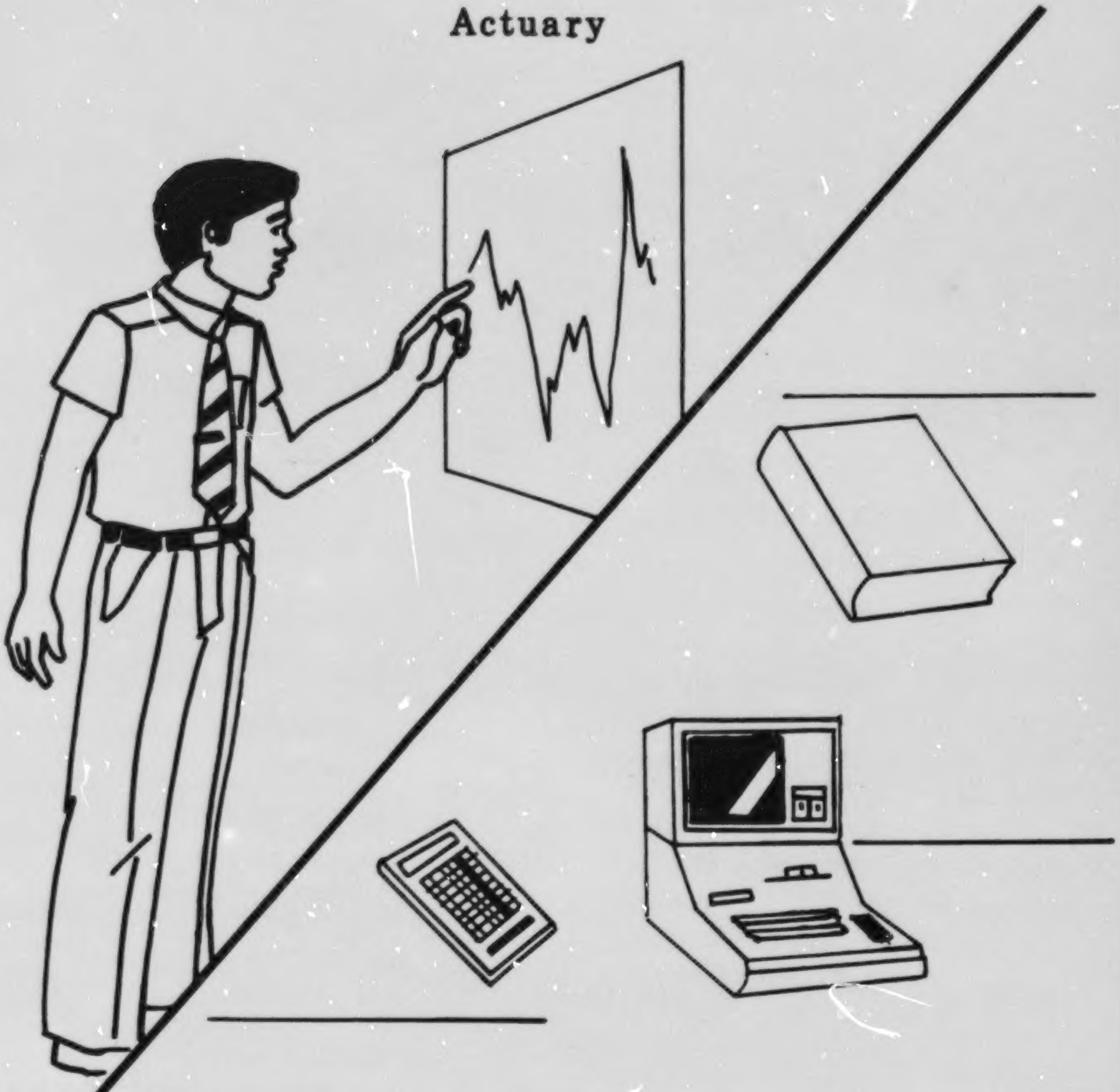
* *

Sometimes files are put in numerical order. The file clerk may use a company identification number or social security number assigned to each worker.

Write in the correct numbers to fill in the blanks of the following filing sequences.

1. 091-38-3597; 091-38-3598; 091-38-3599; ____________________
2. 089-40-5320; ____________________; 089-40-5322
3. 21563.1; 21563.2; ____________________; 21563.4
4. 729481a; 719481b; ____________________; 729481d
5. 364ab1; 364ab2; 364ab3; ____________________

Actuary

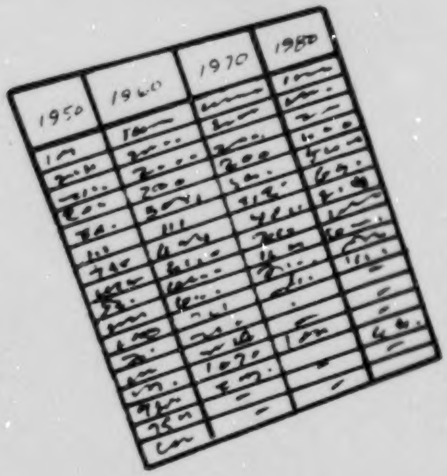


This actuary is using a graph showing recent insurance claims to figure next year's policy rates.

Actuary

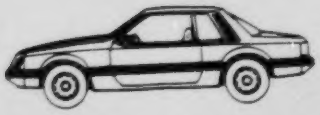
Actuaries work for insurance companies and for some governmental agencies. They spend most of their time working with a special kind of mathematics called statistics. Statistics is the study of numbers. Actuaries can use statistics to find special meaning in the numbers.

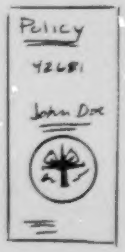
Actuaries use statistics to figure out how much to charge for different insurance policies. For instance, since as a person gets older the possibility of the person's death increases, life insurance policies cost more for older people. However, as medical care improves, the average age at time of death increases. Actuaries keep themselves aware of changes and must use statistics to change their figures.

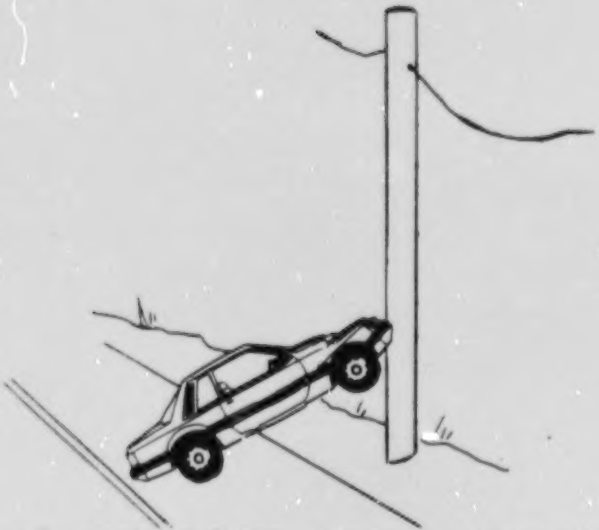


Actuaries also suggest ways for insurance companies to invest money. The money an insurance customer pays the insurance company is called a premium. Clients' premiums are invested to make money for the insurance company. The insurance company uses this money to pay its workers and to pay clients who make claims against the insurance company.

When a client insures a car with an insurance company, the client pays a premium. The size of the premium depends on many things like the size of the car, how much the car cost, the age of the driver(s), and whether the driver is a man or a woman.







When all facts are taken into consideration, actuaries can use statistics to predict the likelihood of the cars' being in an accident. The more likely the probability of accident, the higher the cost of the premium. If the car is involved in an accident, the client makes a claim against the insurance company. Depending on the amount of damage and the type of policy held by the client, the insurance company will pay for part of or all of the damage. Actuaries are responsible for predicting the probability that the insurance company might have a claim filed against it. Actuaries use legal reference books, calculators, computers, and insurance guidelines to help them write policies. They use charts, graphs, and other records to make their probability statistics. Each claim is carefully recorded. Today's claims are the figures actuaries use to predict tomorrow's probabilities.

Actuaries begin training by taking math courses in high school. In college, they take more difficult math courses. They must take a series of tests to be recognized professionally. This series of tests may be begun before graduation from college. It continues through the early part of actuaries' careers and may take up to 10 years to finish.

If you like working with numbers, perhaps being an actuary would be a satisfying career for you.

Deductible

Many insurance companies write policies with deductible clauses. This means that the client must pay a set amount before the insurance company pays part of or all of the bill. For instance, "$50.00 deductible" means that no matter how much the bill is, the client must pay $50.00 before the insurance company will pay any of the bill.

Use what you know about "deductible" to answer the following questions.

1. Fran had an accident with her car. It would cost $436.00 to repair the grill. Her insurance had a $100.00 deductible clause.

   a. How much of the bill would Fran have to pay? ____________

   b. How much would the insurance company have to pay? __________

2. Sam broke his arm and had it set by his doctor. The bill was $85.00. Sam's doctor asked Sam to pay the bill before it was sent to the insurance company.

   a. How much did Sam have to pay? ________________________

The doctor marked the bill "paid" and filled out the insurance forms. When the insurance company receives the bill, it will "reimburse," or pay Sam back for, part of the bill. Sam's insurance has a $25.00 deductible clause.

   b. How much money will the insurance company reimburse Sam?

   ____

   c. How much will Sam actually pay to have his arm set?

   ____

3. Mr. Brown had dental insurance with a $75.00 deductible clause. The insurance company would not pay until Mr. Brown had spent $75.00. Below is the record of Mr. Brown's dental visits.

6/ 1/82	X-rays	25.00
6/ 8/82	filling	20.00
6/15/82	2 fillings	30.00
6/22/82	extraction (tooth pulled)	32.00
6/29/82	cap	212.00
7/ 6/82	root canal	115.00

a. What was Mr. Brown's total dentist bill? ______________

b. How much did Mr. Brown have to pay? ____________________

c. For how many visits did Mr. Brown pay? __________________

d. After which visit had Mr. Brown met the deductible clause?

___________________________ (date)

e. On what visit (date) did the insurance company begin paying?

____

f. How much did the insurance pay? _______________________

Percentages

Often, insurance policies are written so that when the client has met the deductible clause, the insurance company will pay a percentage, or part, of the remainder of the bill.

For instance, Sarah's health insurance has a $50.00 deductible. After Sarah pays the $50.00, the insurance company will pay 80% of the rest of the bill. If Sarah's doctor bill was $360.00, the payment would work like this:

Bill	$360.00
Sarah's deductible	- 50.00
Remaining bill	$310.00
Insurance pays 80%	x .80
Insurance will pay only	$248.00
Sarah must pay	$310.00
remainder of bill	-248.00
	$ 62.00
deductible	$ 50.00
remainder of bill	62.00
	$112.00
Sarah's total payment	

Deductible and Percentage Problems

Do the following problems about deductible and percentage rates. Use Sarah's problem as a sample.

1. Louis' dental insurance has no deductible on X-rays. They pay 90% of all X-ray costs. Louis had dental X-rays totaling $130.00 last month.

   a. How much will the insurance company pay? ______________

   b. How much will Louis have to pay? ____________________

2. Megan's automobile insurance has a $200.00 deductible, but the insurance company pays 100% of the repairs after the deductible has been met. After her accident, it cost $834.69 to repair the front of her car.

   a. How much did Megan have to pay? ____________________

   b. How much did the insurance company pay? ______________

3. Jerry's health insurance will pay 85% of any costs over the $75.00 deductible. When he broke his leg, it cost $180.00 to set the fracture.

   a. How much of the bill was left after Jerry paid the deductible?

      ____

   b. How much did the insurance company pay? _________________

   c. Besides the deductible, how much of the remaining bill did Jerry have to pay? ___________________

   d. Including the deductible, what was Jerry's total payment?

      ____

Bar Graph

Actuaries use graphs to compare numbers. They use the information from graphs to estimate insurance rates. Answer the questions below by looking at the graph on the following page. (The bar graph on the following page is not a graph of real figures. It does not reflect the true accident rate in any of the states listed.)

1. What is the title of this bar graph? ______________________

2. How many states are recorded on the graph? ________________

3. Which state had the most accidents causing more than $1000.00 damage? ______________________

4. Which state had the least accidents causing more than $1000.00 damage? ______________________

5. How many accidents with damage over $1000.00 were reported in Maine? _______________; Massachusetts? ________________; New York? _________________; Connecticut? _____________; New Hampshire? _________________

6. Which two states reported the same number of accidents? ____

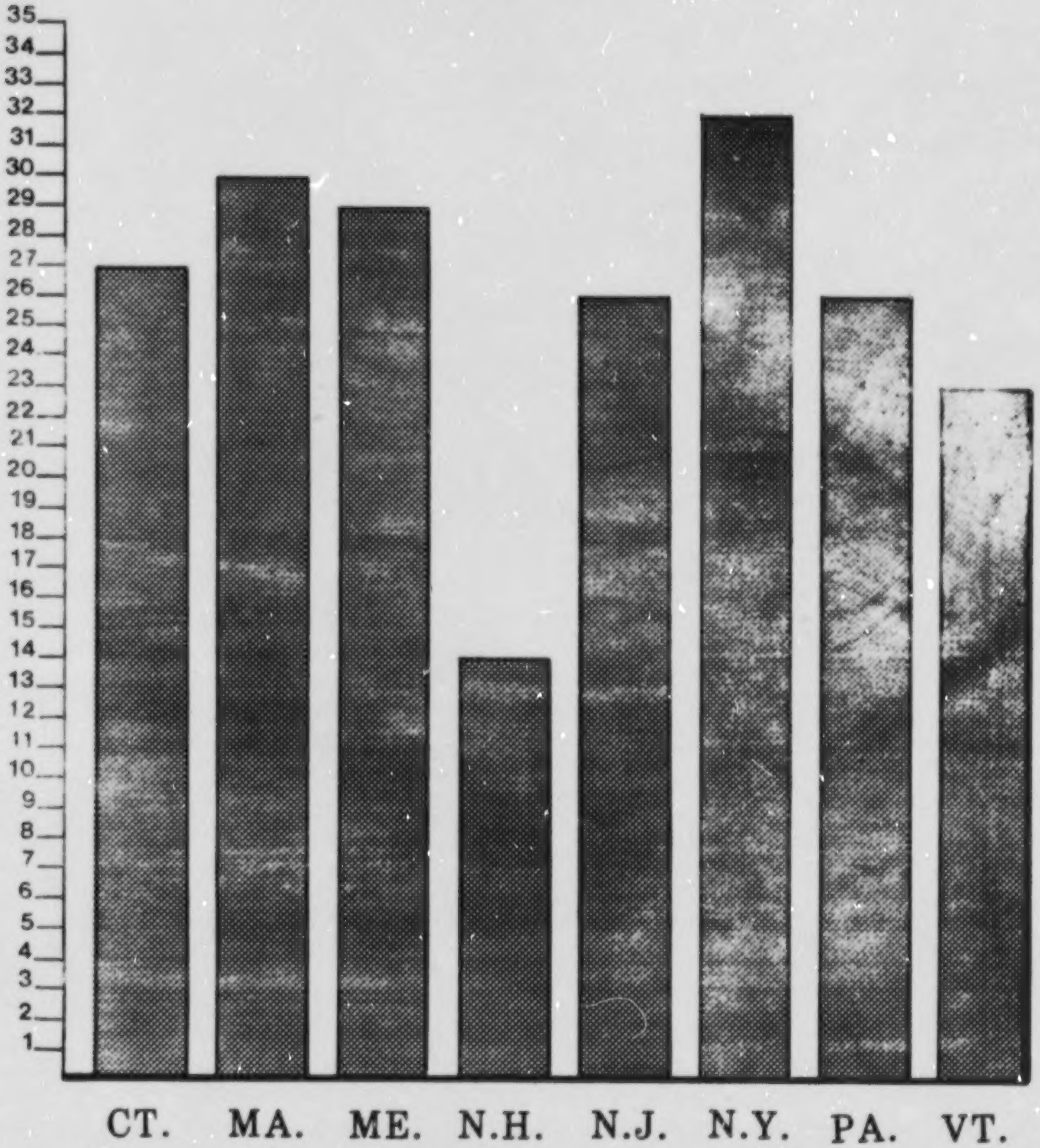
7. Insurance rates are higher for states reporting more accidents. Which state would have the highest insurance rates? ___________ ______________ Which state would have the lowest? ____________ _____________

8. If a New York resident had a car accident that caused $897.00 worth of damage, would that accident be counted on this graph? ________________________________

9. What is the difference between the highest and lowest accident rates on this graph? _________________________________

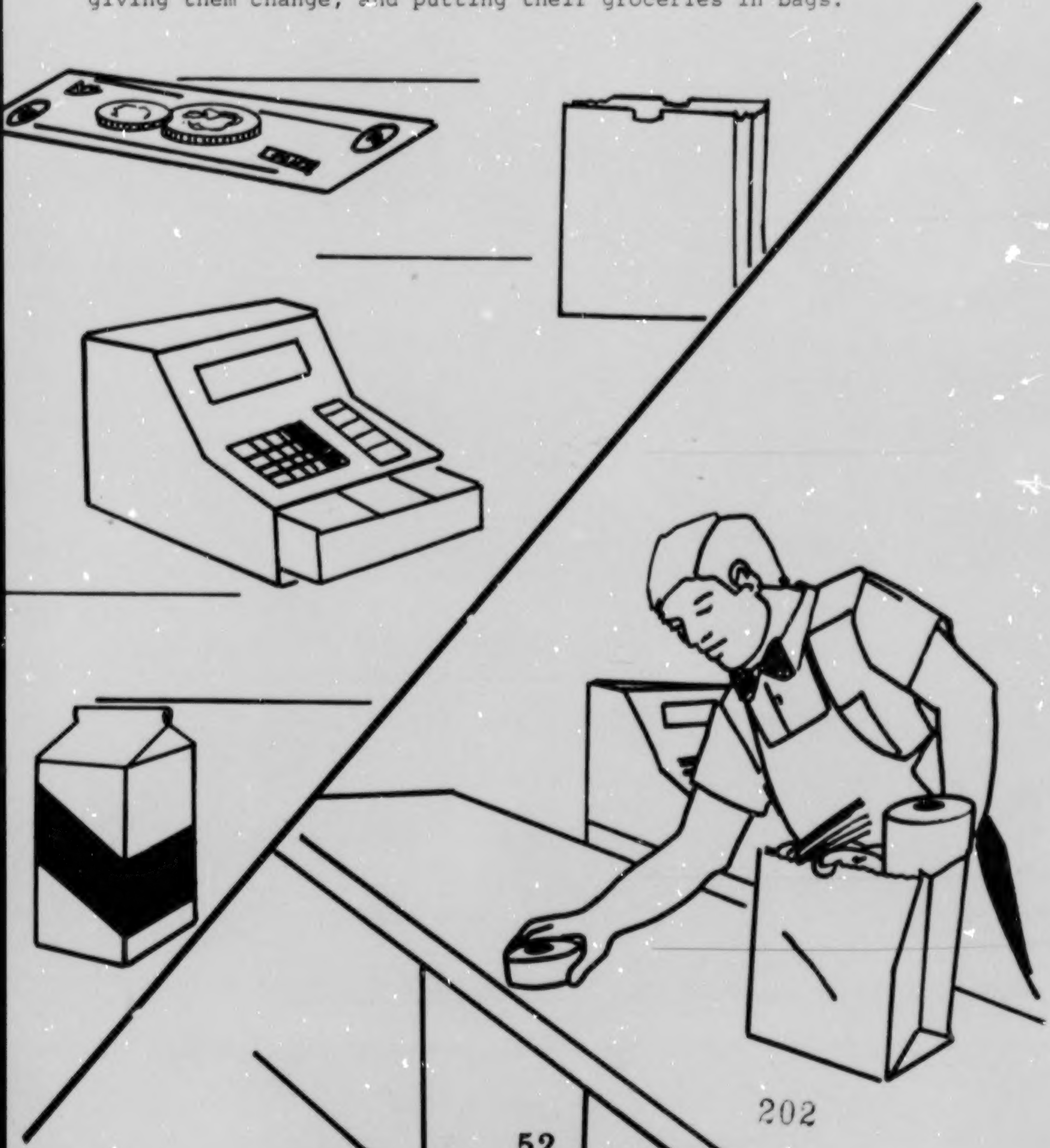
Accidents Causing More Than

$1000.00 Damage



B-7 Cashier

This cashier works in a supermarket. He helps customers by totaling their purchases on the cash register, taking their money, giving them change, and putting their groceries in bags.

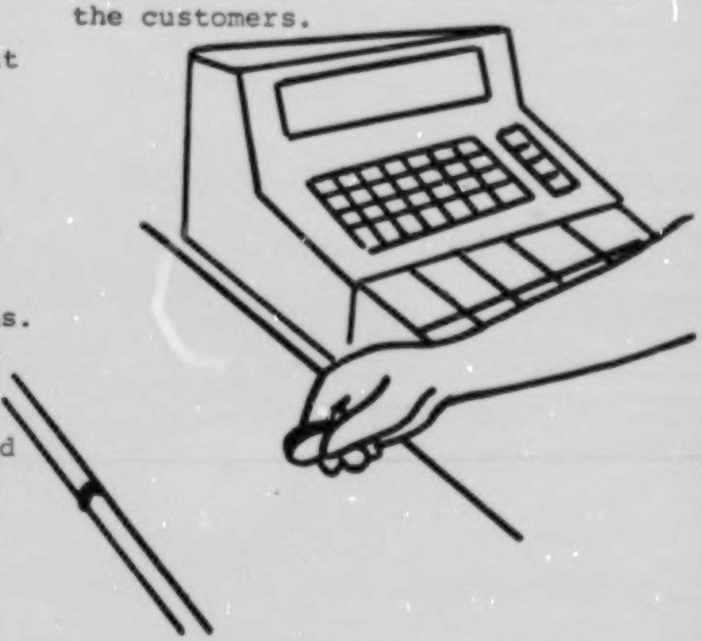


Cashier

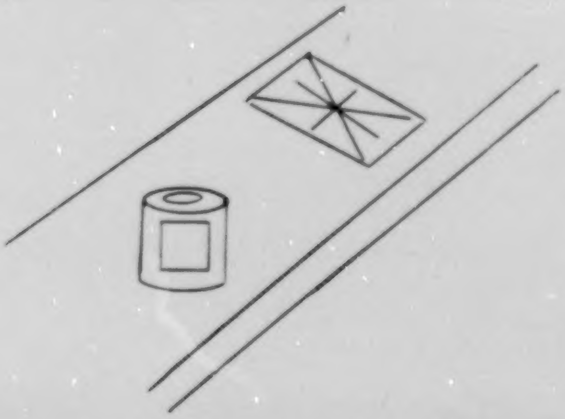
FOOD MART
Sale .59
Sale 1.29
Sale .89

Cashiers work in supermarkets, stores, and other places where customers pay for goods and services. Employers usually train cashiers on the job. Having good math skills is helpful. Cashiers should also like dealing with people in a friendly way. Sometimes, the only store employees that customers see are the cashiers. It is important that cashiers make a good impression on the customers.

Cashiers handle the money that customers pay for goods that they buy. They use a cash register to record how much each item costs. Then the cash register adds up the costs of the items and tells the cashier the total cost of the items. When the cash register has totaled the prices, the cash drawer opens. The cashier takes the money offered by the customer and puts it in the cash drawer. If the customer has given the cashier too much money, the cashier makes change and gives it to the customer.



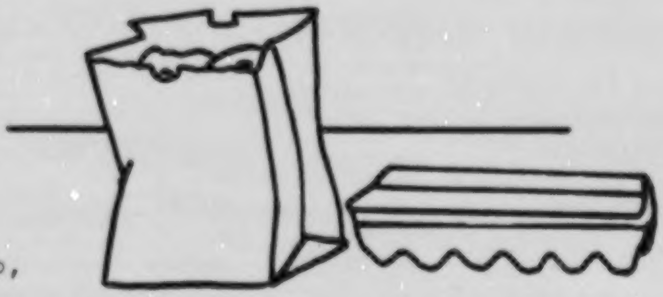
Many stores now use computerized cash registers. Some of these systems have electric "scanners" which "read" the pricing information on product labels. The scanner tells the register how much the price is. The cashiers don't have to punch the keys of the cash register. They simply move the scanner over the coded pricing information, or move the product over a



Cashiers help customers in many ways. They may answer customer's questions about the products the store carries and the prices of items. They may receive complaints from customers. Sometimes they handle complaints themselves, and other times they may call the store manager to deal with customers' complaints. Cashiers also help wrap, or bag, customers' purchases. Sometimes this takes a great deal of care. Customers don't like to unpack their purchases and find squashed bread or broken glassware.

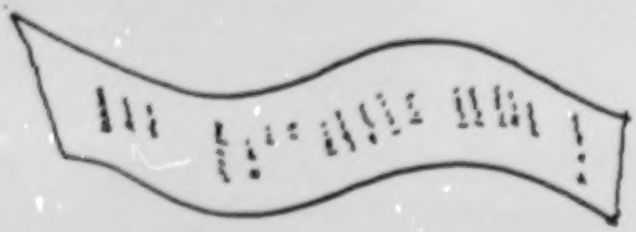
built-in scanner. Many cash registers tell the cashiers how much change the customer should get back. The new cash register systems make "checking out" much quicker and easier.

When cashiers are not busy helping customers check out, they have other tasks to do. Sometimes they use a pricing machine to stick price labels to products. Sometimes they keep the shelves near their cash registers full of products. At other times they may be cleaning their work areas.



Cashiers sometimes stand in the same place for hours on end. They have to deal with many kinds of people in a variety of situations. Cashiers need to be trustworthy in handling money and credit. Cashiers who are very good at their jobs sometimes get jobs as head cashiers. Head cashiers train other cashiers and supervise their work.

If you are a trustworthy person who enjoys working with the public, perhaps becoming a cashier would be a good way to begin your career.



Cash registers help cashiers in two ways. They add up the prices of items to tell the cashier the total cost of the customers' purchases. The cash register also has a drawer that is divided into spaces to hold all of the different coins and bills with which customers pay for their goods.

Complete the problems below to see how much time and work the cash register saves.

1. Mr. Jefferson bought a pair of pants for $22.98, a shirt for $18.69, a necktie for $3.98, and shoes for $28.50. What was the total cost of Mr. Jefferson's outfit? ________________

2. David walked to the store for his mother. He bought milk for $1.14, bread for $.78, and margarine for $.67.

   a. What was the total cost of the groceries? ___________

   b. David paid for the groceries with a five-dollar bill. How much change did the cashier give David? ________________

3. Mrs. Ortiz went to the auto parts store to buy parts to service her car. She bought an oil filter for $5.78 and 5 quarts of oil which cost $1.09 each.

   a. What was the total cost of the 5 quarts of oil? ________

   b. What was the total cost of the oil and the filter? _______

   c. If Mrs. Ortiz paid with a twenty-dollar bill, how much change would she get? ________________

Sales Tax

Stores in some states have to charge sales tax on their goods. If the sales tax is 7%, multiply the total x .07, and add this product to the total.

For instance, 7% tax on a $9.00 order would be figured like this:

subtotal of goods	$9.00	subtotal	$9.00
x tax rate	x .07	tax on $9.00	+ .63
tax on $9.00	$ .63		$9.63

4. Figure the total cost + tax on the following orders.

a. 4% tax on $23.00 ______________ (amount tax) ______________ (total cost)

b. 6% tax on $58.00 ______________ (amount tax) ______________ (total cost)

c. 7% tax on $100.00 ______________ (amount tax) ______________ (total cost)

d. 8% tax on $2,000.00 ______________ (amount tax) ______________ (total cost)

e. 9% tax on $5,000.00 ______________ (amount tax) ______________ (total cost)

Discounts

Many stores hold seasonal sales to sell items quickly. Often they discount, or charge less for, items by a certain percentage. For instance, a discount of 20% works like this.

cost of item	$42.00	item price	$42.00
x 20 percent	x .20	less discount	- 8.40
discount	$8.40		$33.60

Figure the discounts of the following sale items.

Bicycle
25% off
regular price
of $219.00

____
(amount discount)

____
(sale price)

Video Game
40% off
regular price
of $139.00

____
(amount discount)

____
(sale price)

Color television
15% off regular
price of
$694.00

____
(amount discount)

____
(sale price)

Swimming pool
20% off regular
price of
$3,497.00

____
(amount discount)

____
(sale price)

Classifying

Cashiers need to be aware of where items are located within their stores. Often, customers ask the cashiers where to find certain products. Below is a list of the aisles in the Food 4 U Supermarket. Beside each aisle number are the types of food found in the aisle.

On the line beside each numbered product, write the number of the aisle where you would find that product.

Aisle 1	dairy products/produce
Aisle 2	meats/frozen foods
Aisle 3	canned fruits/juices
Aisle 4	snacks/beverages
Aisle 5	flour/baking needs
Aisle 6	paper goods/cleaning products
Aisle 7	pet needs/health care

____ 1. dog food

____ 2. frozen pizza

____ 3. napkins

____ 4. apple juice

____ 5. sliced cheese

____ 6. pork chops

____ 7. sugar

____ 8. lettuce

____ 9. canned pears

____ 10. toothpaste

____ 11. aspirin

____ 12. cake mix

____ 13. flea collar

____ 14. milk

____ 15. ground beef

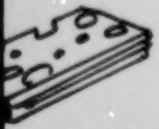
____ 16. butter

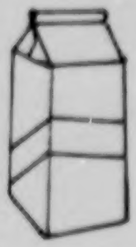
____ 17. canned peaches

____ 18. fresh apples

____ 19. ice cream

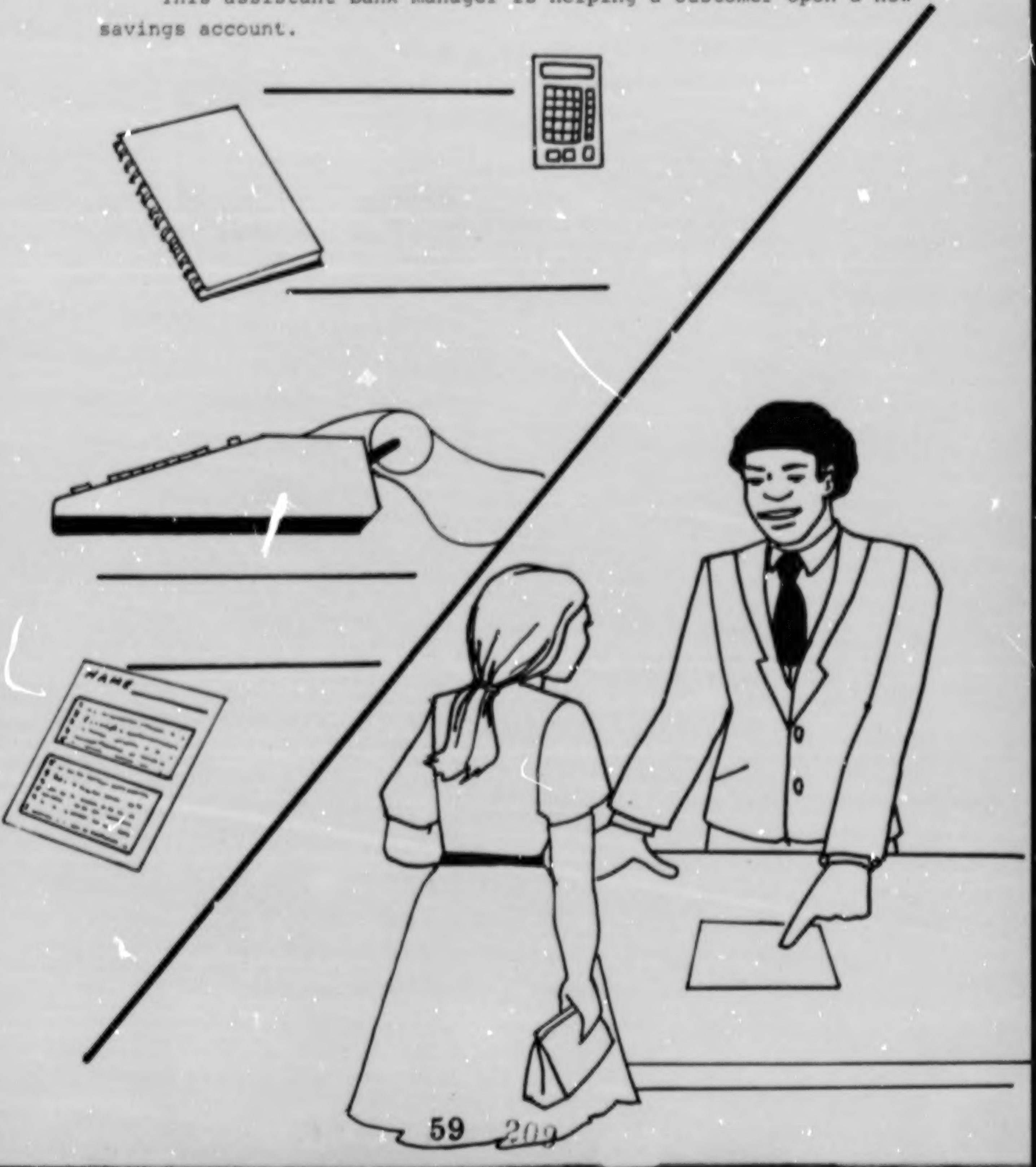
____ 20. peanuts





Assistant Bank Manager

This assistant bank manager is helping a customer open a new savings account.



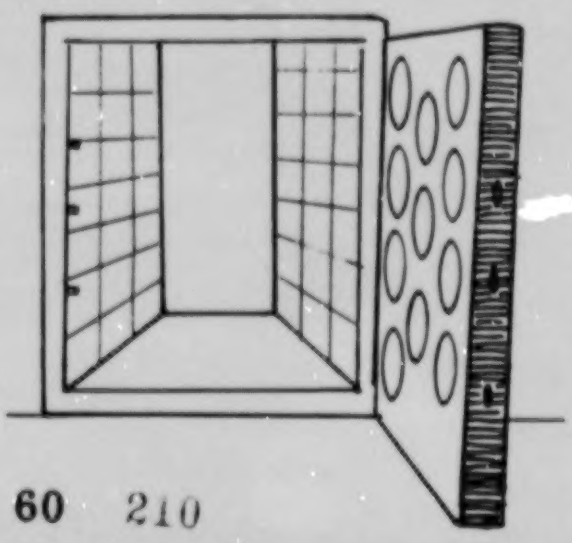
Assistant Bank Manager

Assistant bank managers help branch managers supervise the operation of banks. They begin preparing for this career by taking business, economics, and math courses in high school. After high school, they take business and management courses in college. Many large banks offer vocational training programs as well as on-the-job training.

NATIONAL BANK

Assistant bank managers supervise the work of the bank tellers, or cashiers who work with customers having routine bank business. They help schedule tellers' work hours, work load, and vacations. Assistant managers oversee the daily accounting of all money coming into and leaving the bank. They keep ledgers where all the information is recorded.

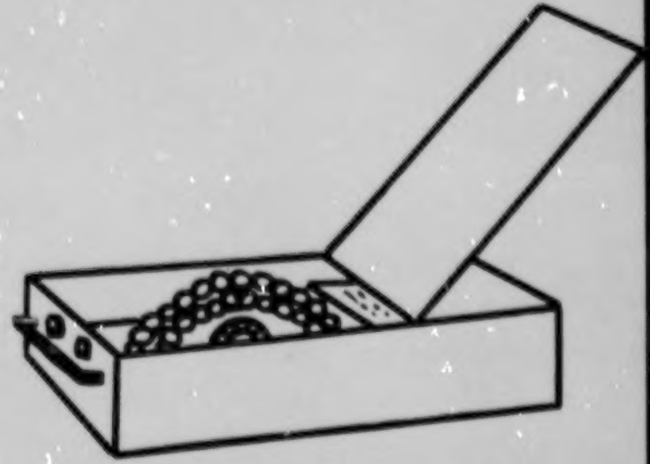
Assistant bank managers also work with customers who need to have special services. They may work with customers who are opening accounts or making applications for loans. Since these services take longer, assistant managers, rather than tellers, handle customers needing these services.



Assistant bank managers are usually in charge of supervising the vault, where money and valuables are kept. The vault is a room-sized safe with a very thick, heavy door. Most vault doors operate on a time clock, so the vault can be opened only at a certain time. The vault contains the money which customers bring in during the day. The vault also holds safe deposit boxes, which customers may rent. Customers can store valuable papers, jewelry or other small items in safe deposit boxes in the bank's vault for safe keeping. Usually, customers are charged monthly for this service.

They handle cash, checks, and night deposits which are left in night depositories by customers.

Assistant bank managers are respected and trusted by their employers and employees. If you are a responsible person who likes working with others, perhaps banking is a good career for you.



Assistant bank managers use ledgers to keep accounts of business and various application forms to give customers the services they want. They may use adding machines, calculators, or computers to help them keep track of accounts. They also may use typewriters and photocopiers in the course of preparing applications and accounts.

Interest

When someone puts money into a bank, the money doesn't just sit there! It is loaned to other people, who pay for loan service. Depositors are paid interest when they put money in the bank. Loan holders pay interest when they borrow money from the bank.

Here's how it works:

Danielle deposits $200.00 in the bank. She is paid 7.5% interest on her account.

deposit	$200.00	$200.00	deposit
x .075	x .075	+ 1.50	interest
	1000	$201.50	total in account
	1400		
interest earned	1.50		

The bank actually owes Danielle $201.50 because of her added interest.

If someone borrows $200.00 from the bank they may be charged 17.5% interest.

amount of loan	$200.00	amount of loan	$200.00	
x interest rate	x .175	amount of interest	+ 35.00	
	1000		$235.00	amount borrower must pay back
	1400			
	200			
amount interest	$35.00			

Interest

The borrower must actually pay back $235.00. The extra $35.00 is the cost of getting the loan.

On Danielle's $200.00 deposit the bank has earned $35.00 in interest paid by the borrower. The bank owes Danielle $1.50 in interest on her account.

bank earned	$35.00
bank paid Danielle	+ 1.50
bank profit	$33.50

The bank made a profit of $33.50 on the $200.00 deposit. The costs of running the bank (employees' pay, equipment, building) are paid for by the profits the bank makes.

Find the answers to the problems below.

1. Joe has $800.00 in his savings account. His bank pays 7.5% interest each year.
   a. How much interest will Joe's $800.00 earn in one year? ________
   b. After one year, how much will the total be in Joe's savings account? ______________
2. Myra needed to borrow $2,000.00. The interest rate on her loan was 17.5%.
   a. How much interest will Myra have to pay the bank? __________
   b. What is the total amount that Myra will have to pay the bank? ____________

Interest

3. Amy has $4,000.00 in her savings account. Her bank pays 6.75% interest each year.

   a. How much interest will Amy earn in one year? ___________

   b. How much money will Amy have in her savings account at the end of one year? _____________

4. Donald needed to borrow $600.00 for a year. His bank charged 14.5% interest per year.

   a. How much interest will Donald have to pay on his loan?

      ____

   b. What is the total amount that Donald will have to pay back? _____________

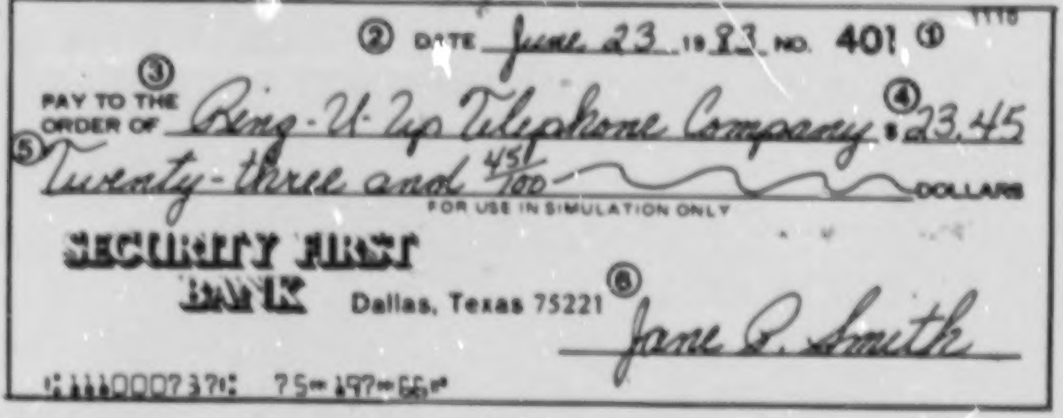
   c. If the amount is divided into 12 monthly payments, how much will Donald have to pay each month? ___________

214

Checking Accounts

Most banks offer their customers checking accounts. Here's how it works. A customer deposits money in a checking account. The customer is given a checkbook and a record book. When the customer wants to pay for something, he writes a check to the person he's paying. The check is good only to the person or company who's name is on the check. The person or company who gets the check can cash it at a bank and get the amount of money that is written on the check. The checking account holder keeps track of the amounts of the checks he's written in his record book.

Checks are written in a special way. Look at the check below.



1110

② DATE June 23 19 83 NO. 401 ①

③

PAY TO THE ORDER OF Ring-U-Up Telephone Company ④ $ 23.45

⑤ Twenty-three and 45/100 DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK Dallas, Texas 75221

⑥ Jane Q. Smith

:111000737: 75-197-66

1. The account number for the check is preprinted on each check.
2. The check writer writes the date on which the check is written.
3. The check writer writes the name of the person or the company he wishes to pay.
4. The check writer writes the amount of money, in numerals, that the check is for.
5. The check writer again writes the amount--this time in words. The cents amount is written as a fraction (45¢ = 45/100; 00¢ = 00/100)
6. The check writer signs his/her name. The check is not able to be cashed without this signature.

Complete the following checks by filling in the missing parts.

Checks

32-73
1110

DATE ______ 19__ NO. **401**

PAY TO THE ORDER OF Sing Along Record Shop $ 17.48

______ DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK
Dallas, Texas 75221

Horace Hummer

⑆111000737⑆ 75⑈197⑈66⑈

32-73
1110

DATE January 2 19 81 NO. **401**

PAY TO THE ORDER OF ______ $ ______

Sixty-four and 87/100 DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK
Dallas, Texas 75221

Gary Gardiner

⑆111000737⑆ 75⑈197⑈66⑈

32-73
1110

DATE ______ 19__ NO. **401**

PAY TO THE ORDER OF ______ $ 283.72

______ DOLLARS

FOR USE IN SIMULATION ONLY

SECURITY FIRST BANK
Dallas, Texas 75221

______

⑆111000737⑆ 75⑈197⑈66⑈

Recording Checks

Every checking account holder has a special booklet in which checks and deposits are recorded. Each time a check is written, the amount is subtracted from the amount, or balance, left in the account. Each time a deposit is made, the amount of the deposit is added to the balance. In this way account holders always know exactly how much money is in their checking account.

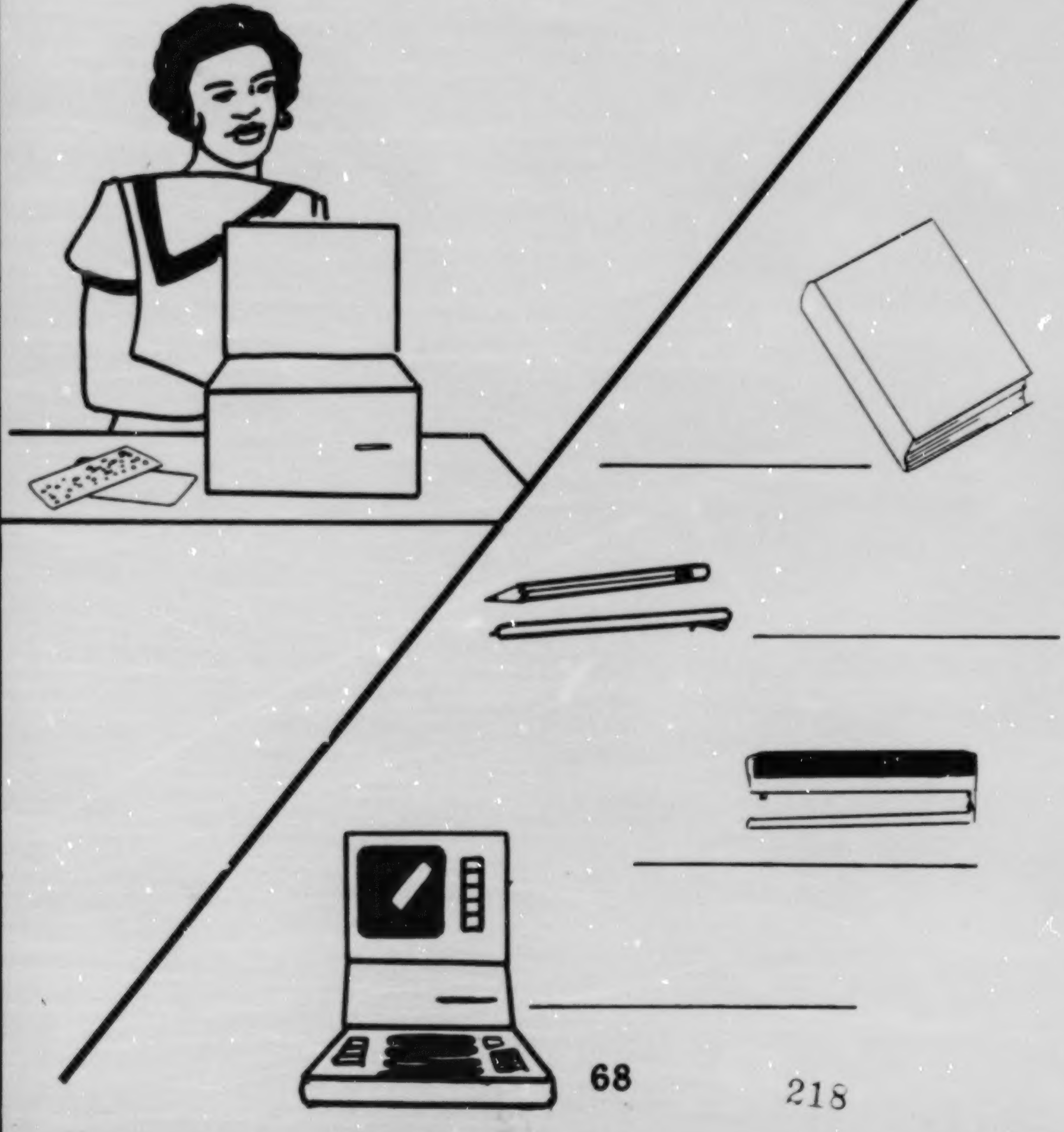
Fill in the missing numbers on the following record book pages.

NUMBER	DATE	DESCRIPTION OF TRANSACTION	PAYMENT/ DEBT (−)		DEPOSIT/ CREDIT (+)		BALANCE	
							$ 834	29
401	6-5-83	Sing Along Record Shop	$ 17	48	$		−17	48
402	6-7-83	Green Thumb Shop	64	87			−64	87
403	6-8-83	Mr. Carpenter	479	38			−479	38
	6-10-83				350	00	+350	00
404	6-11-83	Food-4-U.	126	83				
405	6-14-83	Sam's Garage	48	43				
406	6-18-83	Village Florist	50	00				
407	6-21-83	Fran's Furniture	390	68				
	6-22-83				500	00		

BEST COPY AVAILABLE

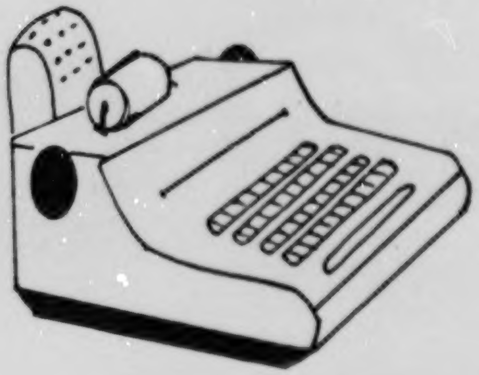
B-7 Computer Operator

This computer operator works in a special dust-free room that is kept at the same temperature. She "programs" the computer to help solve business problems.



Computer Operator

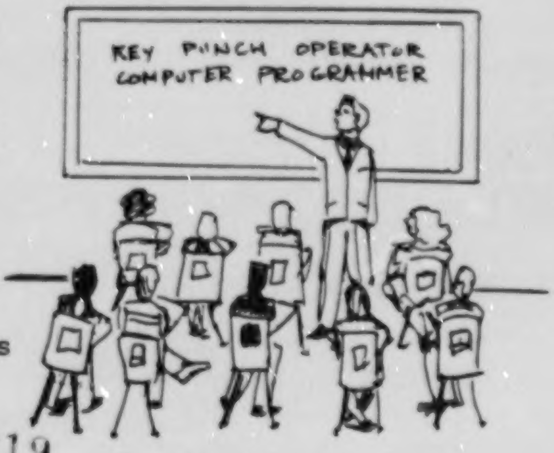
Computer operators run computers for businesses. Many businesses now use computers to keep track of the goods they have on hand, the flow of money into and out of the business, employment records and other information used to run the business. Banks, insurance companies, transportation companies and many other businesses rely on computers to provide the information they need to work well.



Keypunch operators "feed" information into computers. They work at keypunch machines, which look like typewriters. The keypunch operators use the machines to punch holes into paper cards. The patterns of holes in the cards tell the computers what to do. Keypunch operators have to be very careful and do their work accurately, so the computer runs properly.

Because of the changes in computers, keypunch operators are used less frequently. It is now possible to operate computers directly, without "feeding" the computers with keypunched cards. However, training in keypunch operation is still available at vocational schools and community colleges.

Computer programmers receive their training at colleges. More and more colleges are offering courses in computer programming. Computer programmers take courses in math, business, engineering, and science.



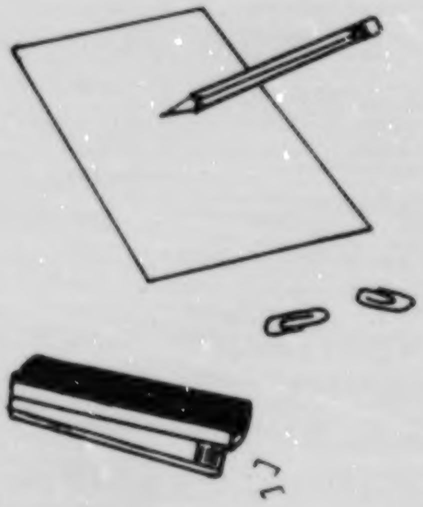
They learn the special "languages" that are used to communicate with computers. Some computer programmers receive training through courses offered by computer companies.

Computer programmers "program" computers. That is, they "tell" the computer what to do. To start at the beginning, computer programmers identify a problem to be solved. They research the problem to find information that will help solve the problem. Then the programmers decide how the information must be handled in order to solve the problem. They set up the computer to take in the information, then the programmers type in the information. The programmers use a special "language" to tell the computers what to do with the information. When the computer has all the information and knows what to do with it, the computer solves the problem.

Programmers and keypunch operators work in offices and computer rooms. Computer rooms are kept very clean. Usually the rooms are kept at a constant temperature to keep the computers working well. Many businesses now have computer rooms.

Keypunch operators and computer programmers use computers, research books, keypunch machines and regular office supplies, like paper, pencils, staplers, and paper clips. When they are not working at the computers, they often work at desks in offices.

Computer operation is a growing career field with many opportunities for interested workers.



True and False

Write T in front of the true sentences; F in front of the false sentences.

____ 1. A keypunch operator makes keys from flat pieces of metal.

____ 2. A computer operator fixes broken computers.

____ 3. A keypunch operator uses a machine that looks like a typewriter.

____ 4. A computer programmer organizes company parties and entertainment.

____ 5. Computer programmers learn their skills in colleges and on the job.

____ 6. A keypunch operator uses a machine to punch holes in paper cards.

____ 7. Computer programmers often do research to find information.

____ 8. Computer programmers always work in dust-free computer rooms.

____ 9. Programmers type information into computers.

____ 10. Computer programmers use a special "language" to tell computers how to handle information.

Circle Graph

Marge used her home computer to check her flow of money. She typed in the amount of money she spent for rent, food, automobile/gas, utilities, clothing, medical/dental expenses, savings, and recreation. The computer printed out the circular graph on the following page.

Answer the questions below by looking at the graph on the following page.

1. Marge spends the most for ______________________________.

2. Marge spends the least for _____________________________.

3. In what two budget categories does Marge spend equal amounts?

   ____

4. Marge makes $1200/month in salary.

   a. How much does she spend on rent per month? ________________

   b. How much on clothing? _____________; recreation? ___________

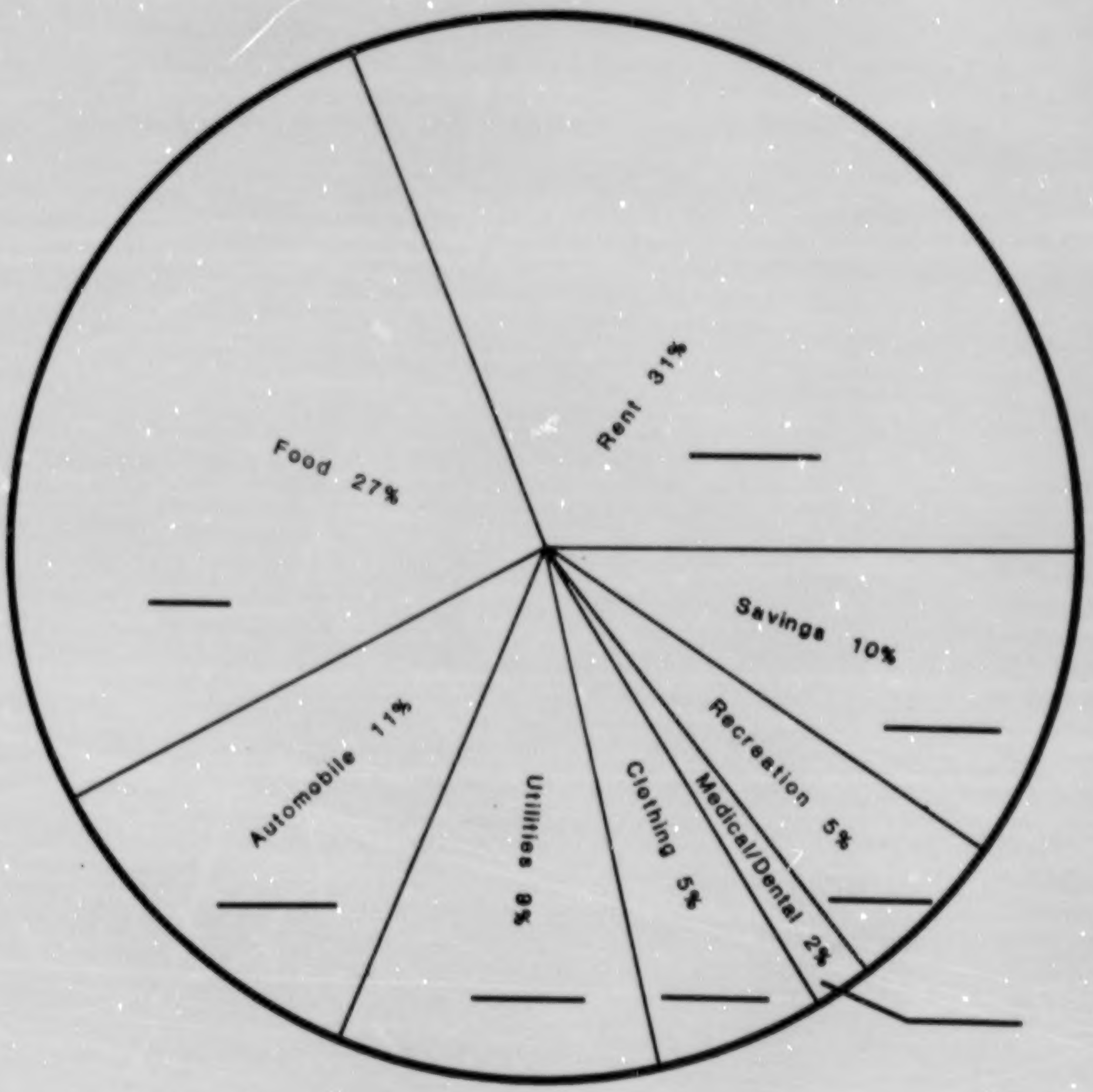
5. How much per year does Marge spend on her car? _________________;

   utilities? _____________________

6. What is Marge's yearly salary? ___________________________

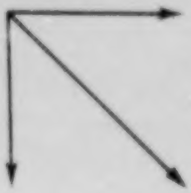
7. On the blank line on or near each pie section, write the amount of money Marge spends yearly for that budget category.

Marge's Budget



Business and Office Word Search

There are 30 words hidden in the word search puzzle on the following page. The words are written from left to right and from top to bottom. Some words are written diagonally from upper left to lower right.



See how many Business and Office words you can find in the word search puzzle.

account
actuary
applications
assistant bank manager
bags
calculator
cashier
cash register
clerical worker
computer
computer operator
dictaphone
file cabinet
file clerk
graph
insurance policy
keypunch cards
keypunch operator
ledger
money
photocopier
programmer
secretary
stapler
statistics
stenographer
telephone
typewriter
typist
vault

A S S I S T A N T B A N K M B A G S

K I P H O T O C O P I E R A M X C A

E A N D Y F I L E C A B I N E T A P

Y S Y S I K I S J L K W C A T S S P

P T P A U C L L T I J H A G E T H L

U E A R C R T X E A V I S E L A R I

N N C T O C A A T C P G H R E T E C

C O T Y M G O N P Y L L I F P I G A

H G U P P M R U C H P E E U H S I T

O R A I U O T A N E O E R R O T S I

P A R S T N M V M T P N W K N I T O

E P Y T E E S F U M N O E R E C E N

R H N E R Y L E D G E R L E I S R S

A E C A L C U L A T O R D I G T T H

T R K E Y P U N C H C A R D C O E Z

O C L E R I C A L W O R K E R Y R R

R C O M P U T E R O P E R A T O R Q

Z S E C R E T A R Y S R B V A U L T

B A N D W G R A P H P C O B P A C Q

Write a Story

Write a story about your favorite worker in the Business and Office Career Cluster.

B 7

Pre Post

Treatment

Date____________

Control

Please Print

Name____
Last name First name Middle initial

School_______________Town_______________

Age______ Sex: Male_______ Female_______

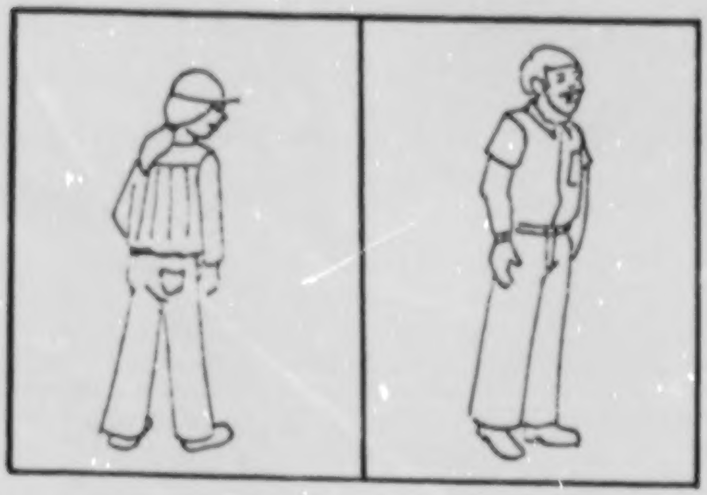
Reading level_______ Instrument__________

Part I - Matching

DIRECTIONS: In the columns below, there are terms and definitions about work. Match each worker in Column A with an item listed in Column B. On the line in front of each worker, write the letter of the answer you choose. There are more answers than questions, but there is only one best answer for each question.

SAMPLE: Match the workers in Column A with the tools in Column B.

Column A	Column B
C 1. Dancer	A. Blackboard
B 2. Janitor	B. Broom
D 3. Tailor	C. Costume
	D. Sewing Machine



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Match the workers in Column A with the most useful kinds of school subjects in Column B.

Column A	Column B
____1. Assistant Bank Manager	A. Art
____2. Clerical Worker	B. Biology
____3. Fish Hatchery Technician	C. English grammar & spelling
	D. Math

Match the workers in Column A with the types of work they do in Column B.

Column A	Column B
____4. Actuary	A. Helps plan work methods & work distribution
____5. Cashier	B. Takes money for goods or services
____6. Marine Biologist	C. Uses statistics to figure probabilities of death, illness, unemployment, or retirement
	D. Works with pharmaceutical companies to find ways to extract drugs from marine plants & animals

Match the workers in Column A with their most likely work places in Column B.

Column A	Column B
____7. Commercial Diver	A. Cafeterias
____8. Computer Operator	B. Laboratories
____9. Marine Biologist	C. Rooms that are dust-free & maintained at a constant temperature
	D. Underwater habitats

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Match the workers in Column A with the skills needed in Column B.

Column A

____10. Boat Builder
____11. Computer Operator
____12. Hydrographer

Column B

A. Compiling data for maps & charts which describe the bottoms of oceans, rivers, & lakes
B. Maintaining indoor ponds & waterways
C. Patching damaged fiberglass by sanding, filling with gel-coat or caulking, buffing, & painting
D. Punching patterns of holes that represent letters, numbers, & other symbols into special paper tapes or cards

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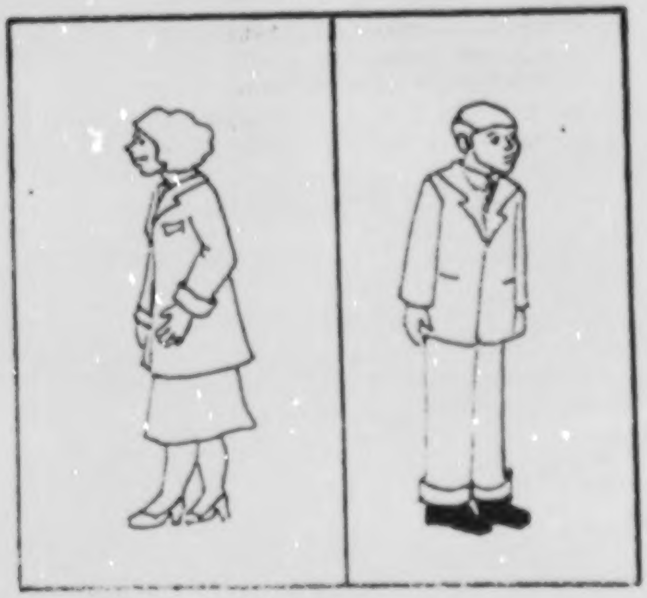
Part II - Multiple Choice

DIRECTIONS: Each question below has 4 answer choices. Choose the item that **best** answers the question. On the line in front of each question, write the letter of the answer you choose.

SAMPLE:

__B__ 1. The name of the worker who uses an easel on the job is:

A. Actor
B. Artist
C. Housekeeper
D. Musician



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____13. A word used to describe things having to do specifically with the ocean is.

A. Marine
B. Nansen
C. Organism
D. Specimen

____14. Which job is part of the business & office work cluster?

A. Boat Builder
B. Clerical Worker
C. Fish Hatchery Technician
D. Hydrographer

____15. Which job requires the most formal education or training?

A. Actuary
B. Assistant Bank Manager
C. Cashier
D. Commercial Diver

____16. Which worker is most likely to use a slurp gun on the job?

A. Assistant Bank Manager
B. Boat Builder
C. Computer Operator
D. Fish Hatchery Technician

____17. Which job requires the least formal education or training?

A. Actuary
B. Cashier
C. Marine Biologist
D. Hydrographer

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____18. Roger wants a job working indoors all the time. Which occupation should he consider?

A. Clerical Worker
B. Commercial Diver
C. Fish Hatchery Technician
D. Hydrographer

____19. This summer Ben will earn money to buy a tent he saw in a catalog of camping equipment. The tent costs $25.37 including tax & shipping charges. If he agrees to work with his friend delivering newspapers for 2 months, he can expect to earn $60.00. If he agrees to work with his older brother selling balloons in the park for one month, he can expect to earn $30.00. What else should Ben do before he makes his decision?

A. Figure out the time needed
B. Know his options
C. Think about his values
D. Use resources

____20. Carrie's goal is to be able to swim by the time she finishes a six-week swimming course at the YMCA. When she signed up for the course, she knew she'd have to work extra hard because she's been in a wheel chair for a year, recovering from a car accident. So she made a schedule to practice for one hour every afternoon & one hour every evening (the class meets in the mornings). After 3 weeks of taking the course, Carrie has been at every class & at every scheduled practice session. What else should Carrie do?

A. Act according to her plan
B. Know what obstacles she'll have to overcome
C. Make a plan to attain her goal
D. Set up a way to check her progress

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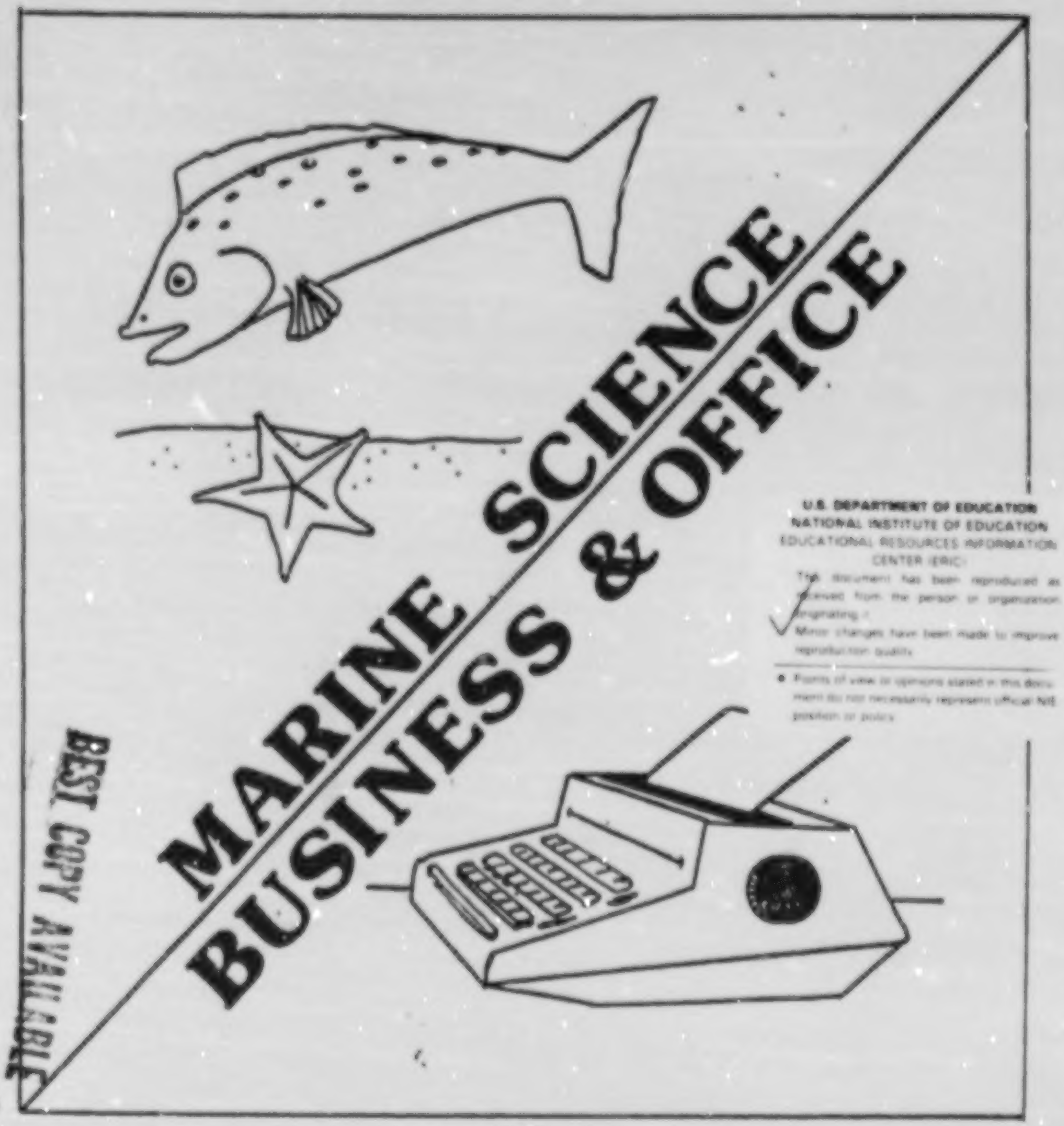
Student Activities

B7-DMGA-1

A Fish Tale



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Directions:

Read the script as you listen to this play.

Materials:

Included:
- Script
- Pictures
- Audio tape

Needed:
- Tape recorder

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A Fish Tale

Story By Dolores Hajosy

Illustrated By Elisa Ross

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FABLES AND A FISH TALE

A fable is a story with a message. Even though animals are usually the main characters in a fable, the characters always teach a lesson. The world's most famous writer of fables is Aesop, a Greek who lived in the sixth century B.C. If you like this type of tale, look for Aesop's fables in the library. His fables are quite short and to the point. Each story has a message, or moral.

Fish Tale is a play that's like a fable because it has a message, or moral. Read and listen carefully to Fish Tale. Then decide what the message is. Finally, try writing your own fable. Remember that - before you begin writing, you should have a message in mind. What have you learned about living that you'd like to share? Make it the message, or moral of your fable.

FISH TALE CHARACTERS

Pilots 1 and 2 -- two small pilot or navigating fish

Blow -- a blow fish

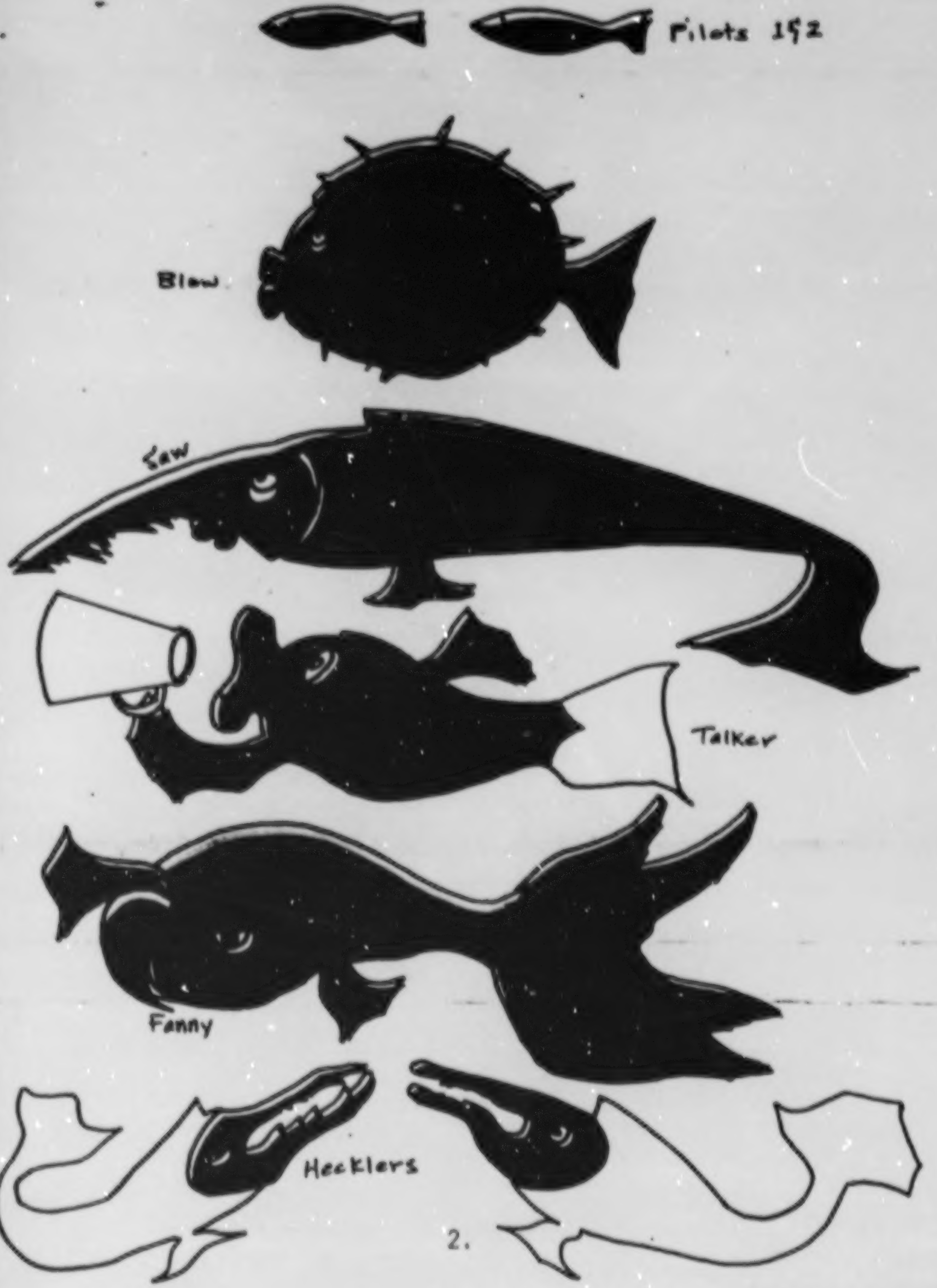
Saw -- a saw fish

Talker -- a talking fish

Fanny -- a fantail fish

Hecklers -- fish from other schools

Characters


Pilots 1&2
Blow
Saw
Talker
Fanny
Hecklers

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Fanny: I never thought of that, Blow.

Blow: Pilots, where are we headed?

Pilot 1: Soon enough we'll be hitting the most wonderful coral reef for fifty leagues around.

Fanny: Hey, Pilots, how do you feel when those hecklers talk about you, making fun?

Pilot 2: Well, we just don't listen. That's all.

Pilot 1: Yeah. We know we're puny, but size isn't everything. We're good navigators. That's what counts.

Pilots: And we've got friends.

Fanny: Why is Talker looking so sad?

Pilot 2: Oh, Saw was just teasing her about being a spy. Saw said Talker can't be trusted because she talks to people.

Saw: Well, people are our enemies, you know.

Pilot 1: But, Saw, if we start making fun of each other, we'll be in hot water. We need one another. You hear?

Saw: I hear. But what good does it do us? A medium-sized fish who talks to people with a silly megaphone! Maybe I'm being prejudiced, but I don't like anything having to do with people.

Blow: We're the Six Star School. Remember? Order of the Starfish.

Pilots: Look out!

Narrator: Just then, a large net descended upon hundreds of thousands of fish. The more the fish wiggled, the tighter the net got. Schools of all sizes and shapes were trapped together. The fish panicked. When the net began to rise toward the surface of the water, Talker cried out.

Talker: It's a good thing we're all different in this school, 'cause we need every bit of talent and brain power we can muster. And we're all good at certain things. Like specialists!

Saw: But even if we escape, those fisher people can catch us again. We've got to get far away before they even know we're gone.

Heckler 1: What'll we do?

Hecklers: We're goners. HELP! HELP! We're trapped. Woe is me. My mother never told me about this. This is really the end. HELP!

Talker: Saw, you cut a small hole in the net, just big enough for me to get out of.

Saw: Why you?

Narrator: There was once a school of fish. But they were no ordinary school of fish. There were not thousands of them, or hundreds of them, or even twenty-five. There were only six members of this school. Now, besides being an especially small school, they were also a motley looking bunch, as different from one another as you can imagine.

Heckler 1: You can't be a school of fish! HA HA HA HA HA HA . . . .

Heckler 2: Look at them traveling together. One is fatter than a beluga.

Heckler 3: Fatter than a submarine!

Heckler 1: And he can't seem to make up his mind. I've seen him real skinny too.

Heckler 2: Blow fish, they call him.

Hecklers: HA HA HA HA HA HA! Blow, blow, blow your bloat, gently down the stream.
HA HA HA HA HA HA HA!

Blow: Maybe I'm funny to look at, but I sure try to be a good fish.

Saw: That's what matters, Blow.

Blow: Thanks, Saw.

Saw: You know, they make fun of me all the time, too. I mean 'cause of my funny sharp nose and all. But there are plenty of uses for this nose -- protection, for one. Why, I've helped protect everybody in this school. Look at it this way! Our differences make us like the points in a starfish. All of us are different and separate, but all of us are part of a unit.

Blow: But starfish have five points. And we're six.

Saw: So, we'll be different. Order of the starfish. The Six Star School!

Heckler 3: Here they come, the freaks!

Heckler 1: Led by two pipsqueaks that hardly deserve to be called fish!

Heckler 2: They're so tiny, they ought to be in a sardine can.

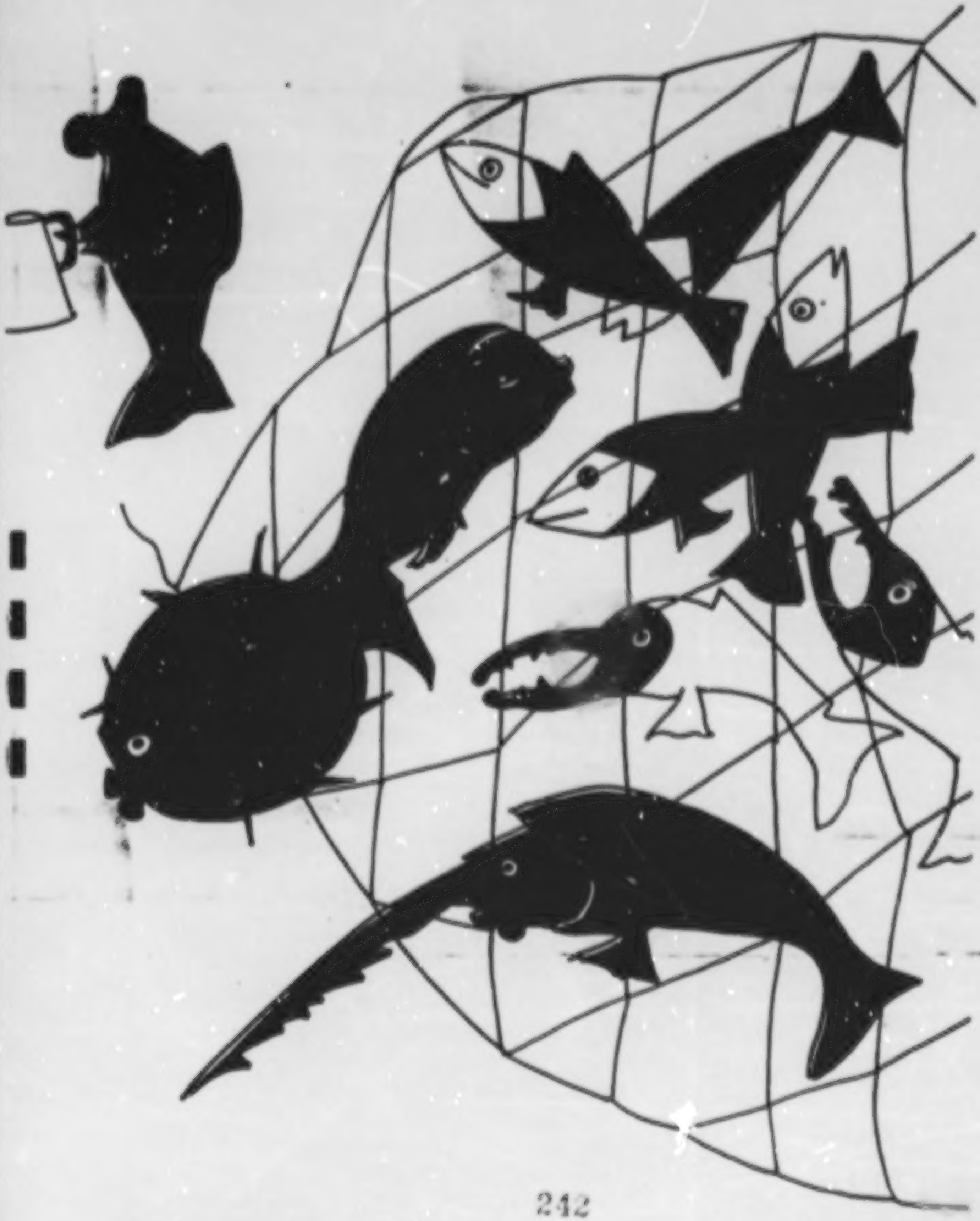
Heckler 4: What about the fantail? She's really beautiful.

Heckler 3: But what can she do? Wiggle around? Stir up the water? That group is a bunch of losers.

Narrator: Fanny swam gracefully, but she felt sad inside.

Fanny: When those hecklers talk about me, I feel so low. So I concentrate on the good things. I think about how good the water feels rippling around my fins. I think about the best meal I ever had. I think about how much I like being a part of this school. Then I feel better.

Blow: And besides, those others have never had a decent conversation with you. Who knows? Maybe they're even jealous.



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Talker: Because I can distract the people who fish. They'll be so surprised at hearing a fish talk that they won't even feel the net getting lighter. And, Blow, you fill up the hole until I give the signal.

Blow: Yes, ma'am!

Saw: Then we'll be free?

Fanny: That's where I come in. I'll stir up the water with my fantail. That'll help Talker get away, and the rest of us, too. There'll be no way to follow us if it looks like a whirlpool coming up.

Blow: Then, Pilots, can you lead us to safe waters?

Pilots: Right'o!

Blow: Then we're ready to go.

Narrator: Saw slowly cut a place in the net just big enough for Talker to escape from. Blow carefully stuffed himself in the hole so that the other fish wouldn't try to get out all at once. Blow held his place. Talker surfaced. The net stopped moving. Then it dropped a few fathoms.

Blow: She must be making quite a splash up there.

Pilot 2: Quiet, Blow, or you'll use up all your air.

Pilot 1: Look! The signal!

Narrator: Saw slashed the net, and thousands of fish poured out.

Fanny: Here goes nothing . . . Swirl and twirl! Waters whirl! Confuse the fishers and save our world. Swirl and twirl! Waters whirl! Confuse the fishers and save our world. Swirl and twirl! Waters whirl . . . .

Saw: Here comes Talker. Ready, Pilots?

Narrator: The Six Star School was on its way!

Saw: Hey, Talker!

Talker: Yeah, Saw?

Saw: I sure am sorry for what I said about you before. You really saved the day. They were so surprised to hear you, they dropped the net. They're probably still up there trying to catch you for an aquarium.

Talker: Or a freak show!

Saw: Well, we may be just like freaks, but we sure do know how to pull together.

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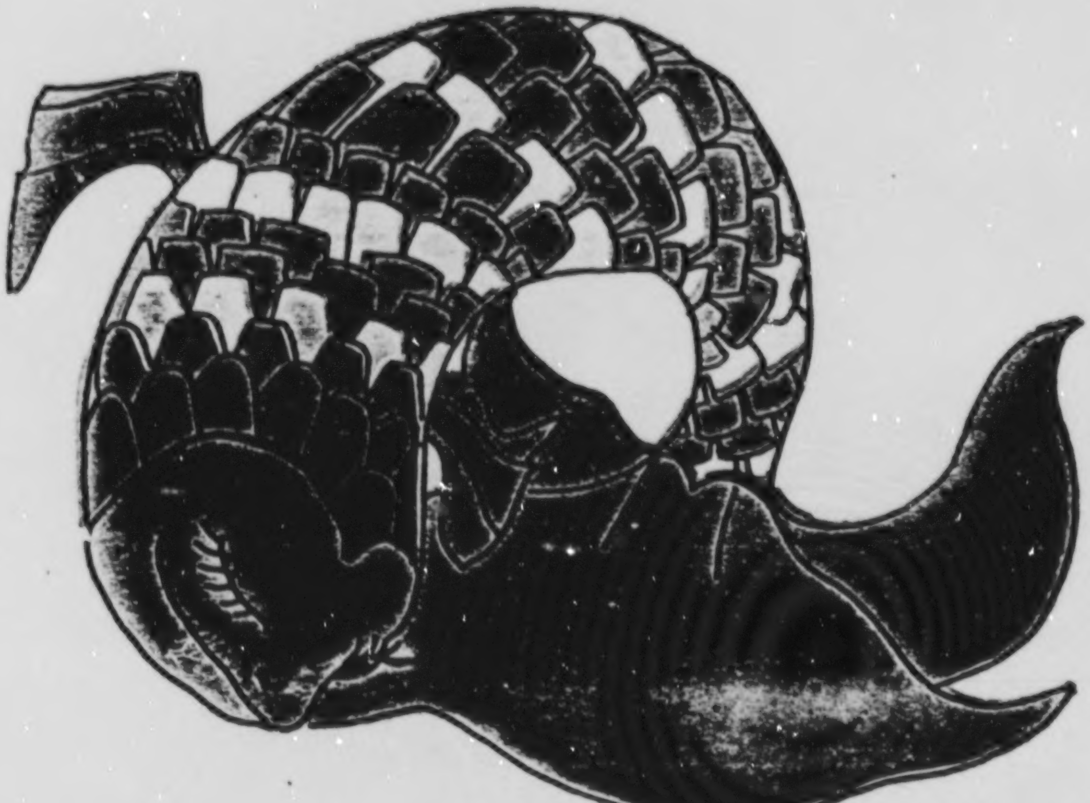
Fanny: Not only that, we just saved thousands of fish.

Blow: They won't ever laugh at us again.

Fanny: Sure they will. But we know that they're just talking through their gills. Right?

Narrator: The members of the Six Star School swam together quietly for the next few leagues. Pilots wondered what their next adventure would be. Blow swam alone, puffing up now and then, and feeling very talented. Saw and Talker swam side by side, glad to be free, and glad to be friends. Fanny, at the "tale" end, flicked her tail and winked.



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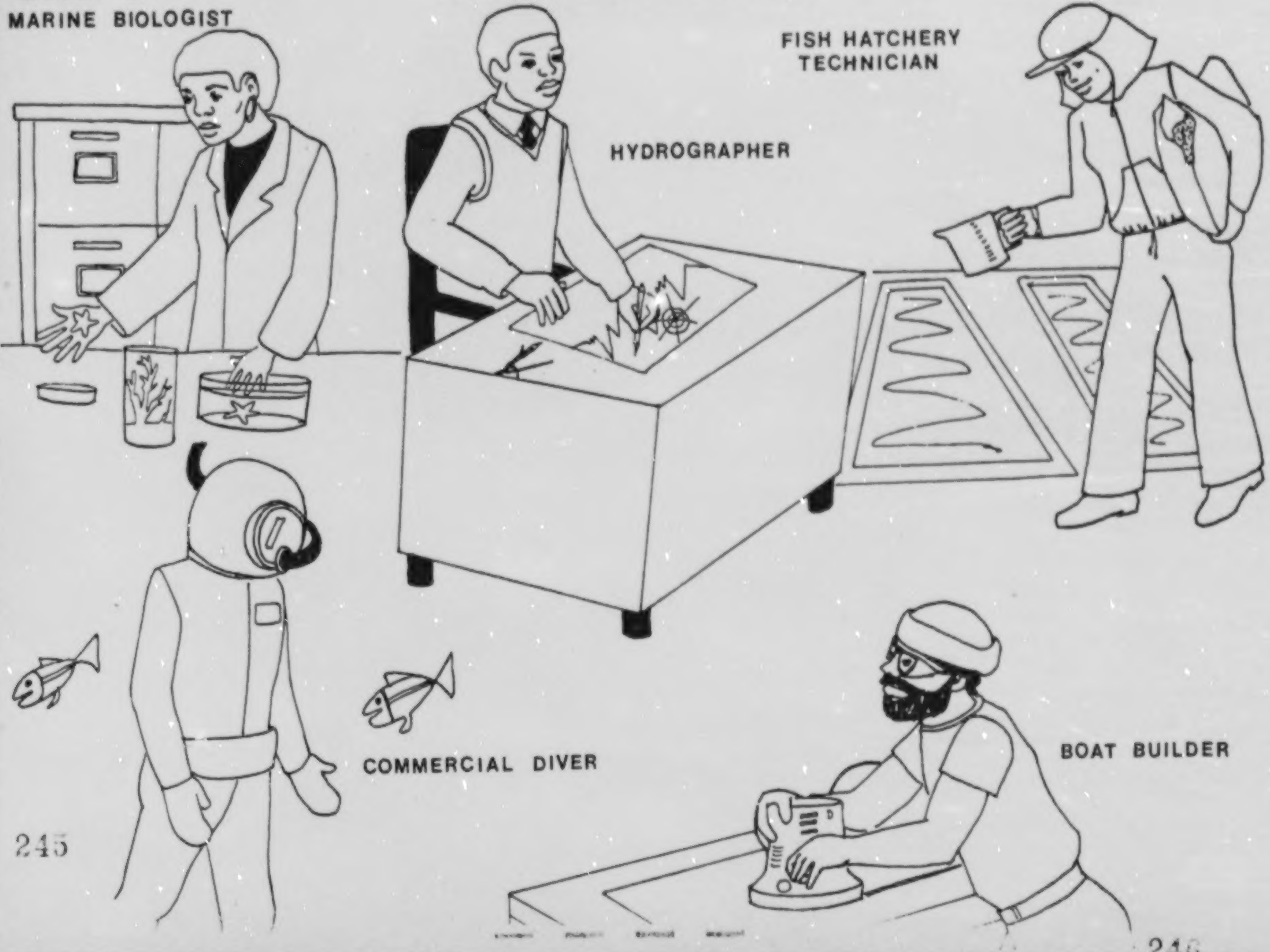
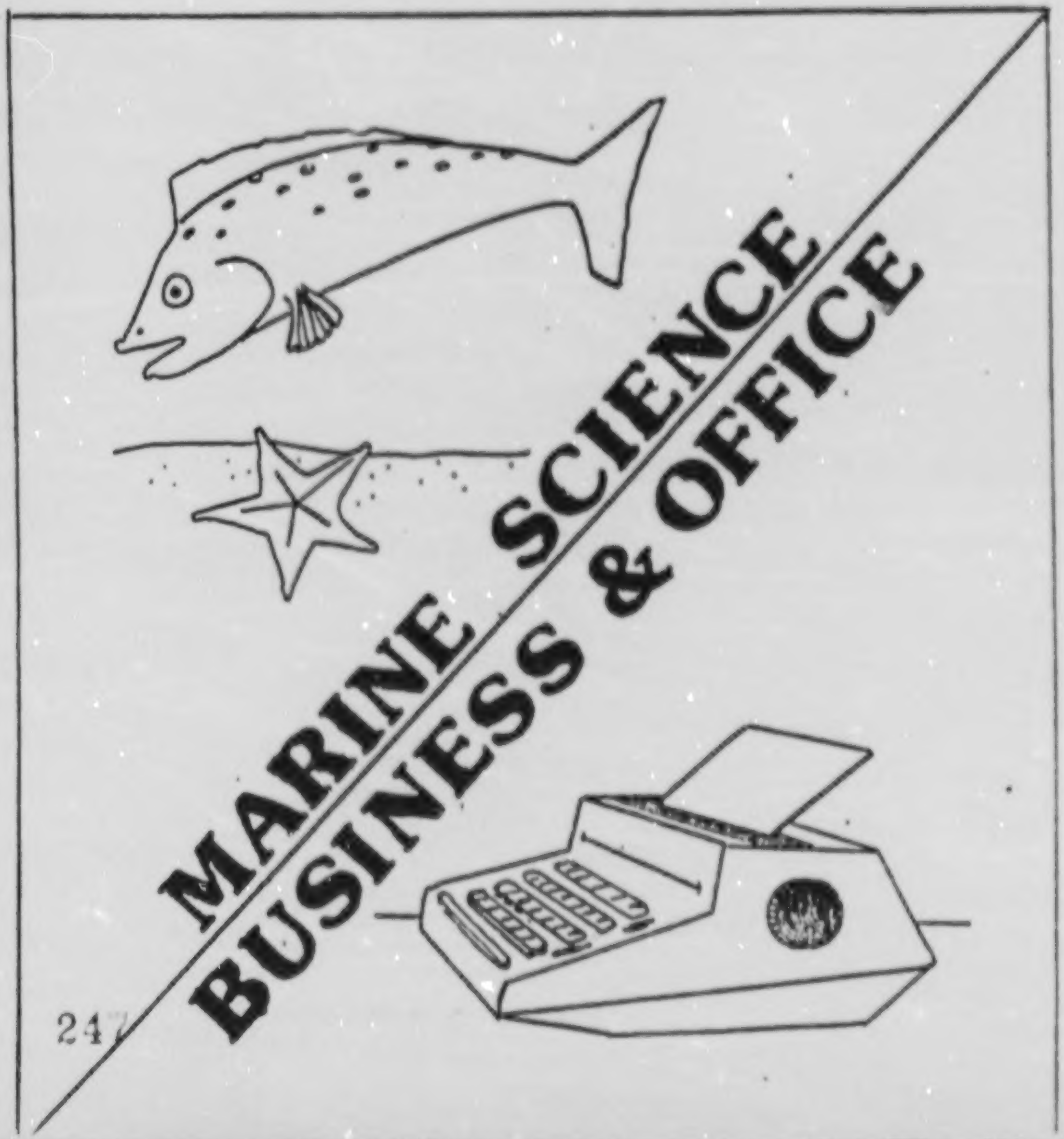
Level B7

MARINE SCIENCE


MARINE BIOLOGIST
FISH HATCHERY TECHNICIAN
HYDROGRAPHER
COMMERCIAL DIVER
BOAT BUILDER

B7-DMGA-2

Breaking the Code


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the story inside, and figure out the coded message at the end.

Materials:

Included:
- Morse code
- Story
- Pictures
- Number-letter code

Needed:
- Pencil and paper

Breaking the Code

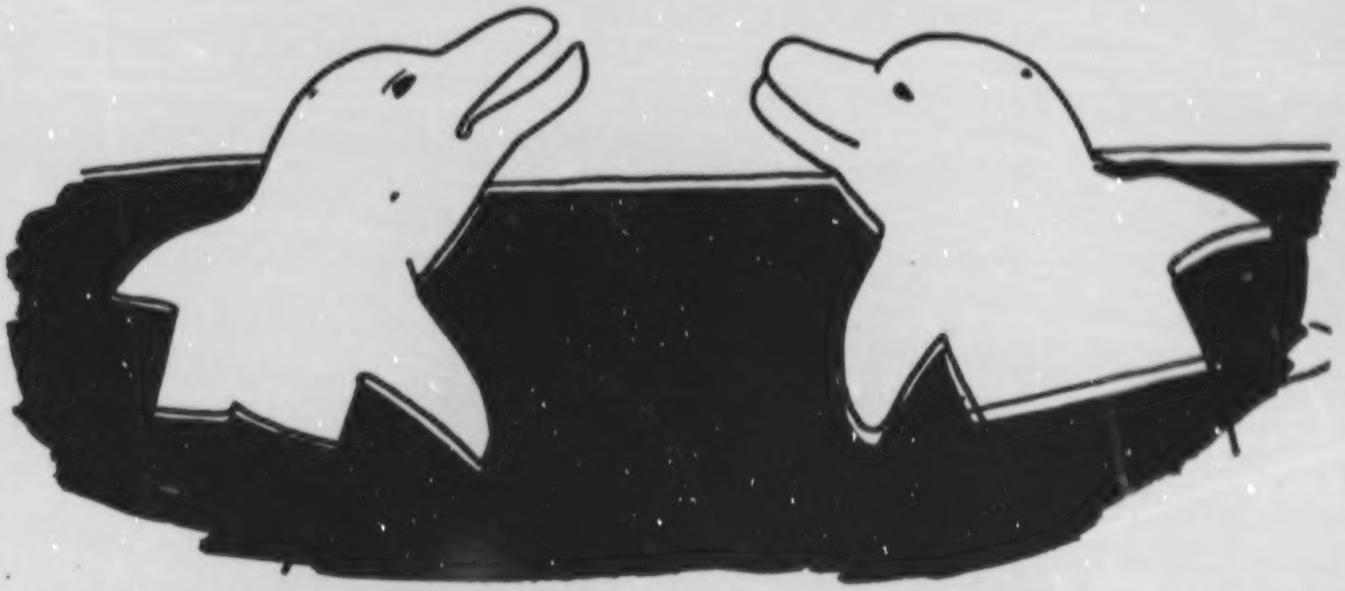
Story and illustrations by Elisa Ross

Morse Code

A	·–
B	–···
C	–·–·
D	–··
E	·
F	··–·
G	––·
H	····
I	··
J	·–––
K	–·–
L	·–··
M	––
N	–·
O	–––
P	·––·
Q	––·–
R	·–·
S	···
T	–
U	··–
V	···–
W	·––
X	–··–
Y	–·––
Z	––··
1	·––––
2	··–––
3	···––
4	····–
5	·····
6	–····
7	––···
8	–––··
9	––––·
0	–––––
comma	––··––
period	·· ·· ··
colon	–––···
apostrophe	·–––

Ilse was a scientist -- a marine biologist, to be exact. She had studied sea life for years in laboratories on shore and in special ships designed for marine research. Now she was working on a very special assignment. Her job was to study dolphin behavior at the Roecock Ocean Lab. Studying dolphins meant watching them every day and recording, or writing down, everything she observed. She used tapes, graphs, special charts, even films. Ilse worked very closely with three dolphins in particular: Lucy, Mathilda, and Freddie. She knew Dolphins communicated with one another. She hoped to discover what it was they talked about.

Each day, Ilse went down to the oceanarium. Some days she just sat and watched the three dolphins, taking notes, making tapes, filling in charts that showed what they did in the water. Other days, she played games with them, teaching them to do tricks. Then she'd go back to her office to copy and compare notes, and to read up on other scientists' findings.



Communication among dolphins interested Ilse more than anything. Dolphins make two different types of sound. One is a whistling sound. Each dolphin makes its own

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individual whistle to identify itself to other dolphins. The second sound a dolphin makes is a pulsating, or clicking, sound. The dolphin makes many variations on this sound. It is this pulsating sound with many variations which forms the complex language of dolphins. And it is their method of "seeing," or identifying, objects in the water.

The clicking sound works like a vibrator through water. When the sound hits an object, it bounces or echoes back another sound. The dolphin can tell many things about the object by the sound that bounces back. The dolphin can also repeat or mimic this sound to other dolphins so that the others can tell what and where the object is. The sonar used on submarines works in the same way.

What Ilse really wanted to know was whether dolphins use their sounds to communicate personal information and emotions. She knew from her tests that they could follow directions given by human beings. This told her that they were intelligent enough to learn parts of a completely different language. But it did not tell her what the dolphins talked about among themselves.

Ilse thought that dolphin language might be like a human language, with individual sounds meaning certain things, just like words do. Perhaps when all the sounds are

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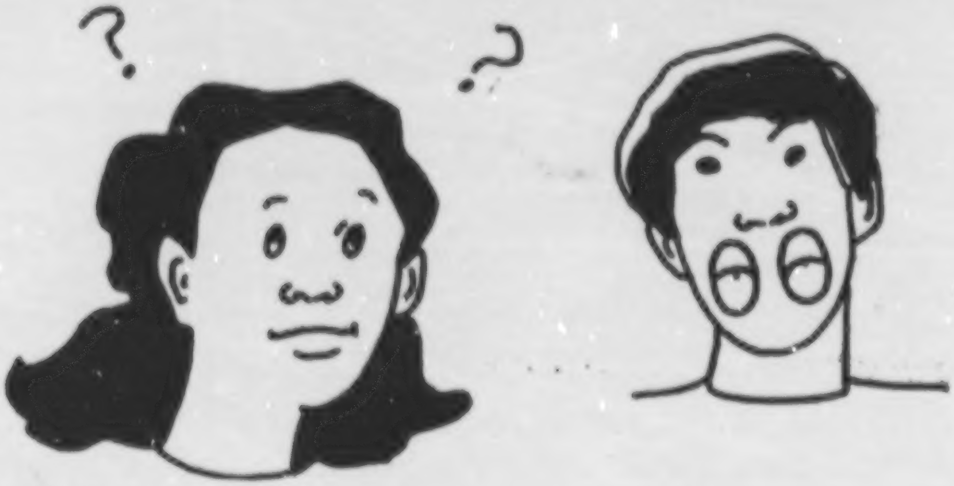
put together, the sounds have a greater meaning, like a sentence does. For Ilse, figuring out what these sounds and groups of sounds meant would be like figuring out a code. So Ilse had to listen to the dolphin's sounds over and over again until she could recognize a pattern of sounds. That was the hard part.

The sounds dolphins make are very complicated. Besides, dolphins talk in stereo. Imagine that we have two mouths to talk with at the same time. Since our ears are not accustomed to hearing different words spoken at the same time from the same person, it would be difficult to understand what was being said. If people did this, it would seem that we talked twice as fast, by overlapping our words. This is what dolphins do with their sounds.



Ilse did know for sure that different sounds did mean different things. A test had been done in which the voice of one dolphin was recorded on tape during a two-dolphin conversation. The tape was played over and over again to the same dolphin, and each time, the dolphin responded the same way and at the same time during the conversation.

All this was very interesting, but it did not help Ilse to figure out what the dolphins were saying to one another. Lately, she had been reading books about international spies and the special codes they used to transfer information to one

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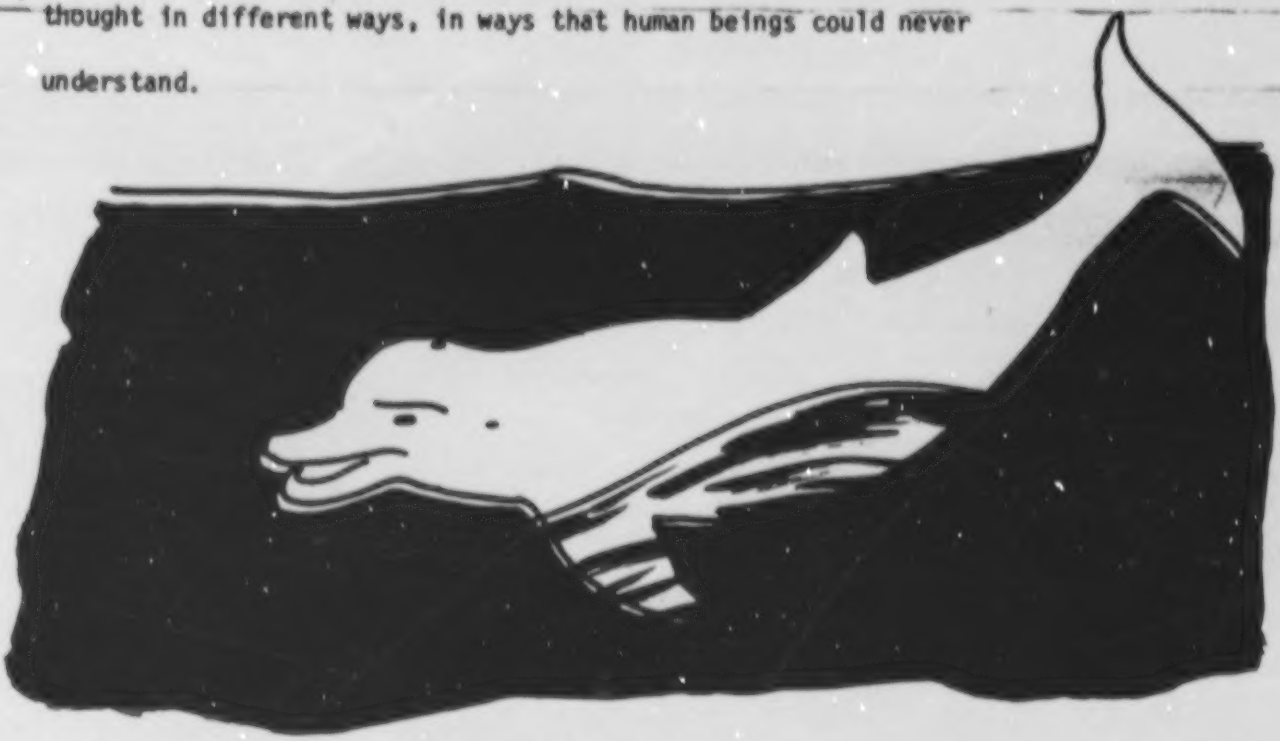
another so that enemies could not understand the messages. If a code was good, it would be hard to figure out. The dolphins' language was like a code to Ilse. She knew that all codes could be broken by figuring out what patterns meant, or by other clues that might explain what the information might be. But dolphin sounds were more difficult. Did dolphins even send their messages in sentences? Maybe their brains thought in different ways, in ways that human beings could never understand.



Ilse was at her wits' end. She wasn't coming up with any answers. The last few nights she had been up until three in the morning listening to tape recordings of the dolphins, reading her notes over and over again. She sat near Mathilda, Lucy, and Freddie, watching them sleepily. She yawned. Ilse made a point of never dozing, because she could never tell when one of the dolphins might do something that would lead her to a major discovery. Regardless of her promise to herself, Ilse began to sleep.

Suddenly, Lucy came splashing towards Ilse.

"Now why can't we communicate, Lucy? I know you're a smart girl."

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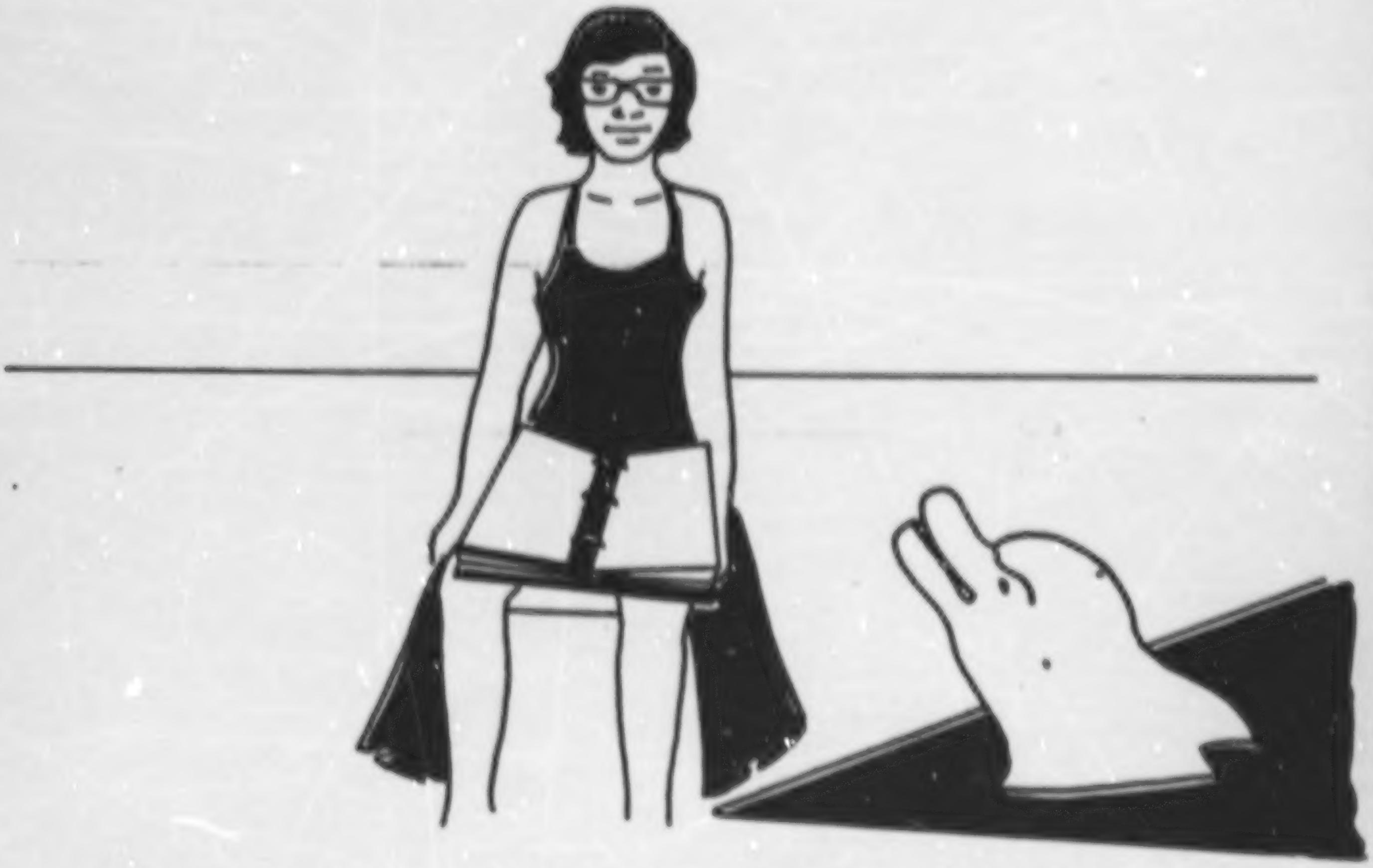

Lucy lined up her body so it was parallel to the side of the pool where she swam. She began to hit her tail against the side of the pool. "Bam bam bam bam . . . "

"What are you doing?" Ilse laughed at the dolphin. Sometimes they did funny things. Was this some new trick she was showing off? Suddenly Ilse realized that Lucy was trying to tell her something. She watched and listened. The pattern seemed vaguely familiar. Of course. It was the Morse Code! Ilse grabbed her pen and notebook and quickly started to copy down the code as Lucy banged it out with her tail.

.— — .— —.— ./ ..— .— —.

.— — .— —.— ./ ..— .— —.

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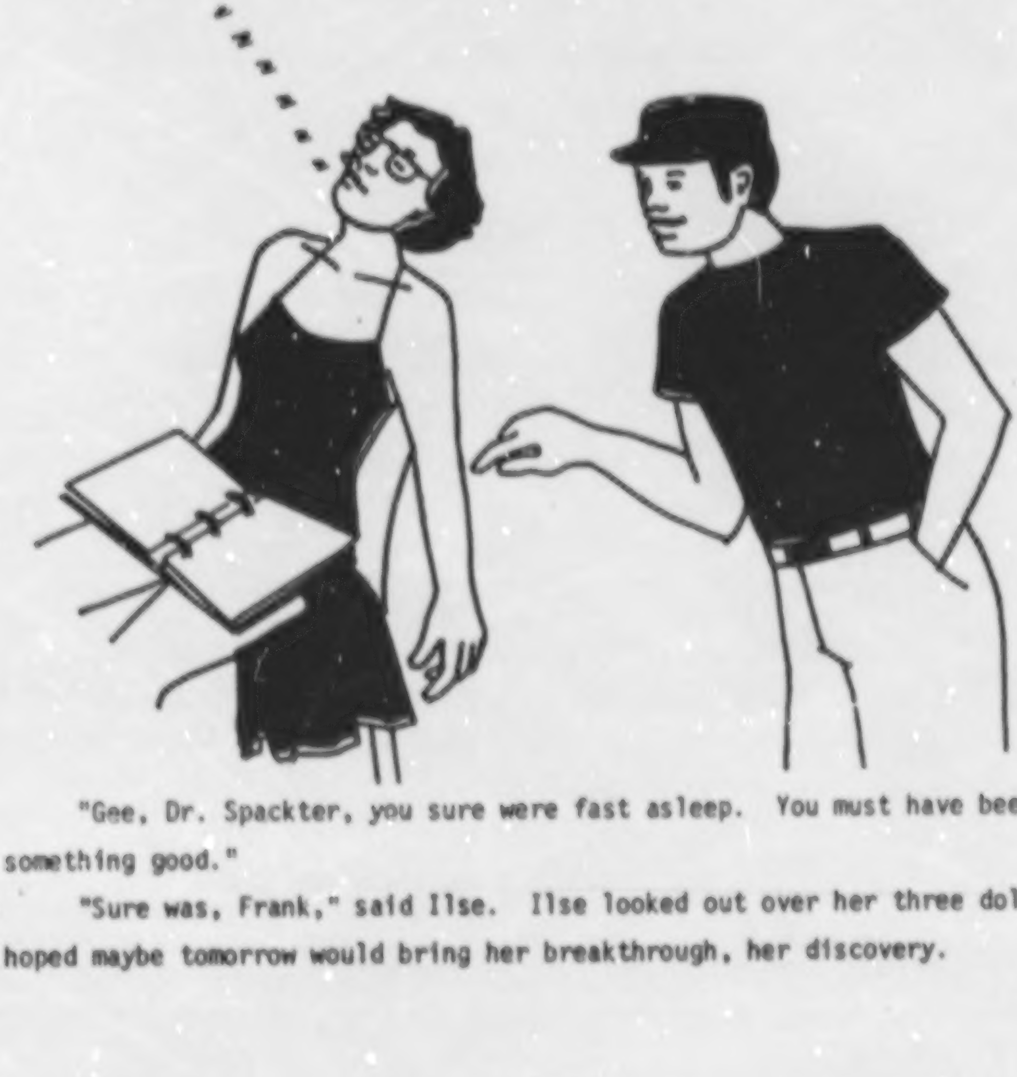
Morse Code is a pattern made up of dots and dashes when written, long and short beeps when transmitted by sound, and long and short flashes when transmitted by light. Ilse remembered learning those signals when she was a Girl Scout. But Girl Scouts weren't the only ones to use Morse Code. Morse Code is considered the international code and is also used by radiotelegraphers.

Ilse couldn't believe that Lucy knew Morse Code. Where could she have ever learned it? Maybe when she was being trained and tested by the Navy to aid shops at sea? Ilse realized that this could be the key to figuring out the dolphins' language. Now they had a common language. If Ilse could teach Lucy to translate her dolphin language into Morse Code. . . . Ilse began to translate the words Lucy was banging out with her tail. She couldn't believe Lucy was actually talking to her. Lucy was telling her to wake up. To wake up! Why would a dolphin be telling her to wake up?

"Wake up. Wake up, Dr. Spackter, wake up."

Ilse looked up. Frank, the oceanarium manager, was standing over her.



"Gee, Dr. Spackter, you sure were fast asleep. You must have been dreaming something good."

"Sure was, Frank," said Ilse. Ilse looked out over her three dolphins. She hoped maybe tomorrow would bring her breakthrough, her discovery.

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	1	2	3	4	5
1	A	B	C	D	E
2	F	G	H	I or J	K
3	L	M	N	O	P
4	Q	R	S	T	U
5	V	W	X	Y	Z

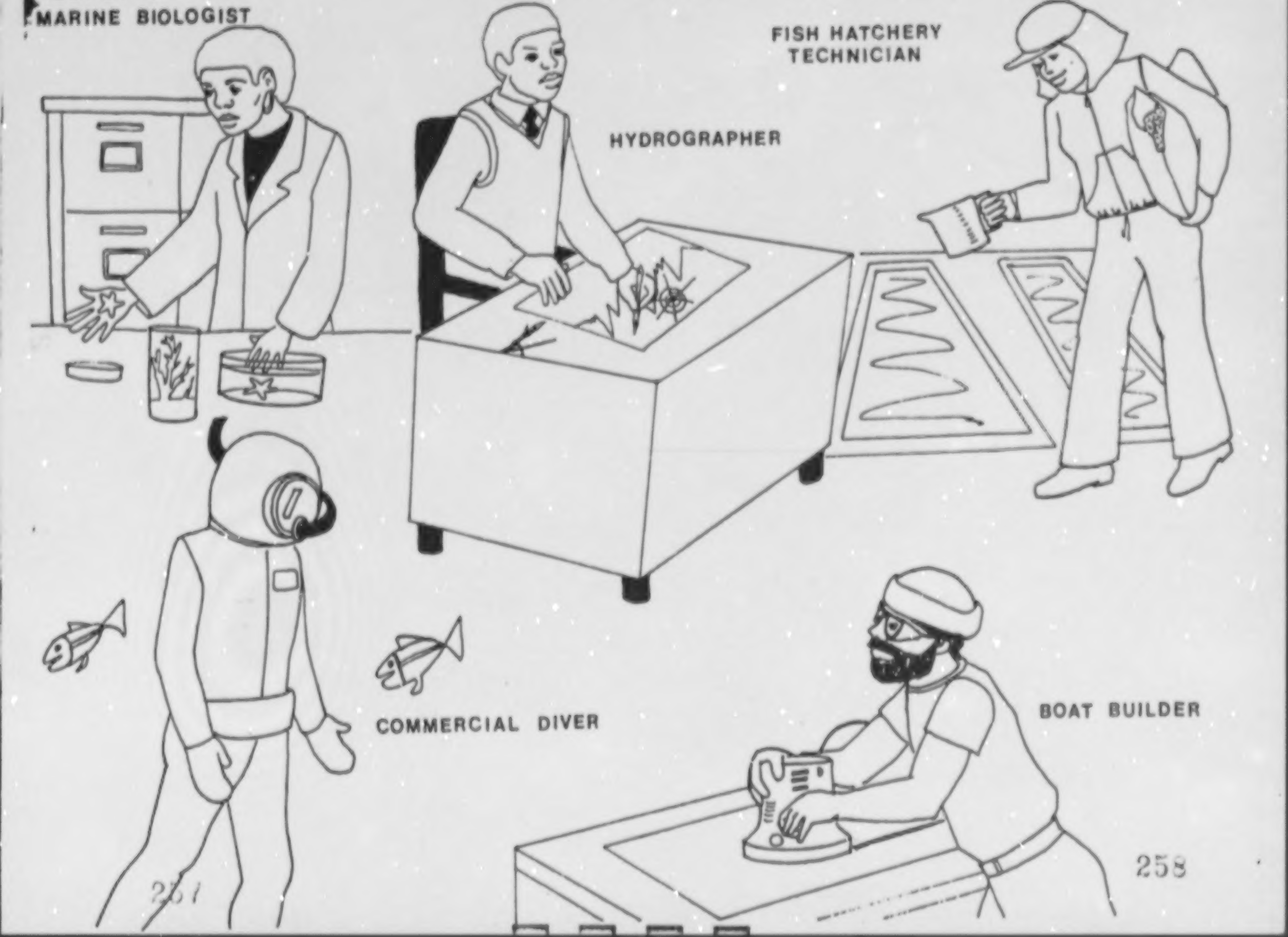
Each letter of the alphabet is represented by a two-didgit number.

For example: A=11, C=13, L=31, T=44

Figure this message out: 24 33 54 34 45 42 31 11 43 44 31 24 21 15
54 34 45 32 11 54 23 11 51 15 12 15 15 32
11 14 34 31 35 23 24 33.

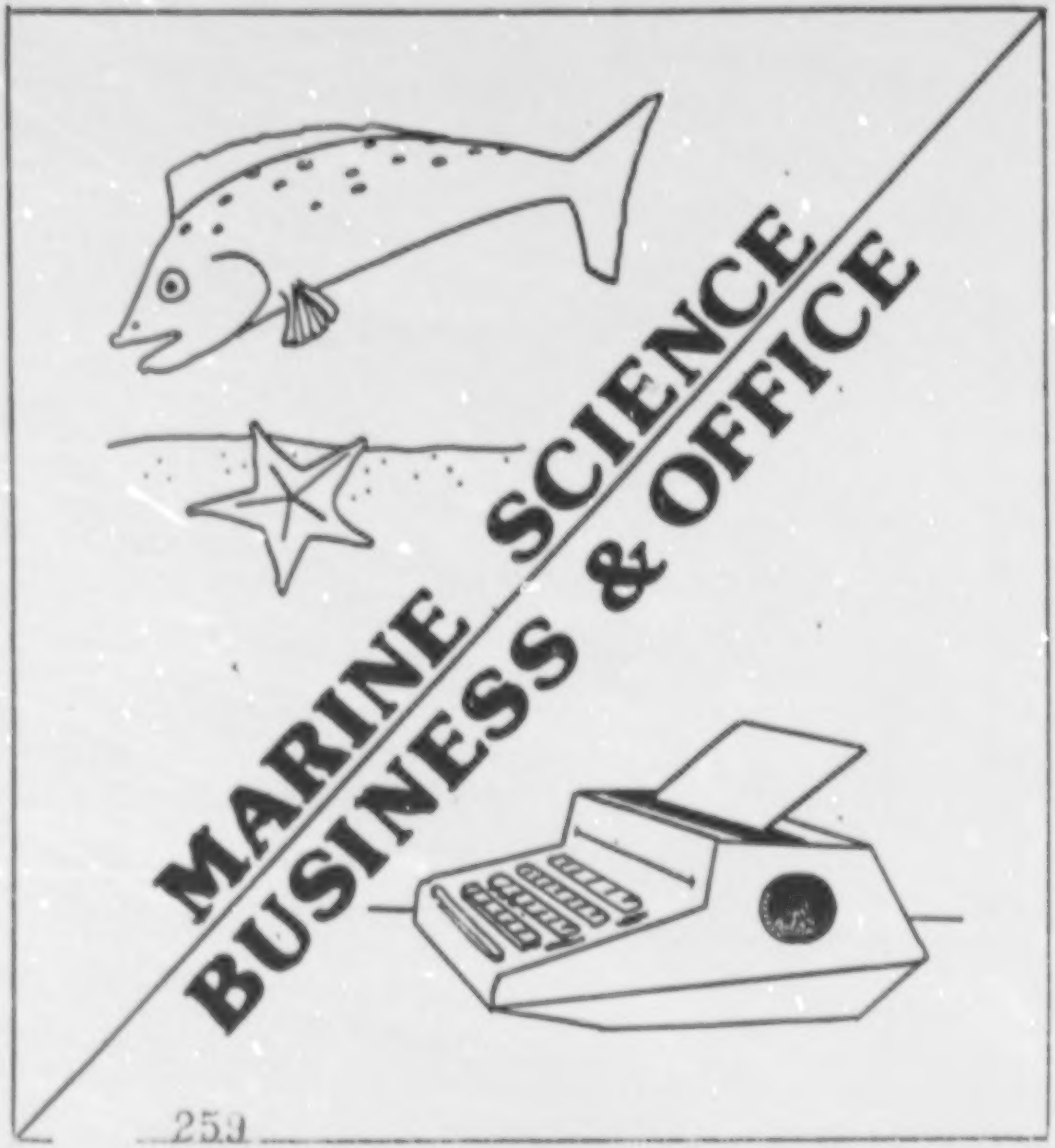
Level B7

MARINE SCIENCE


MARINE BIOLOGIST
HYDROGRAPHER
FISH HATCHERY TECHNICIAN
COMMERCIAL DIVER
BOAT BUILDER

B7-DMGA-3

Business and Office: Problem-Solution Match-up



Directions:

1. Match each problem with a solution (hint: the answers are inside, too).
2. Choose an office skill you'd like to learn, and keep track of your progress in learning it.

Materials:

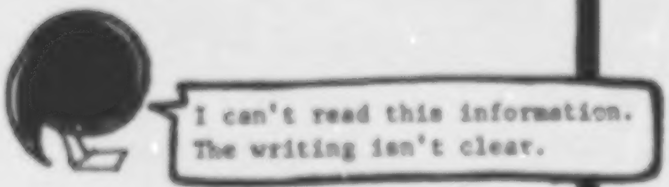
Included:
  Problems-Solutions Matching
  Pictures
  Answers

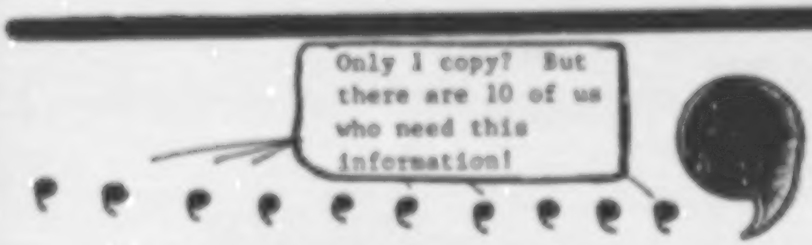
Needed:
  None

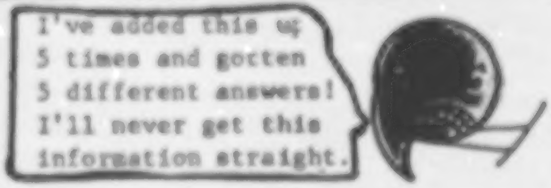
Business and Office Problem-Solution Match-up

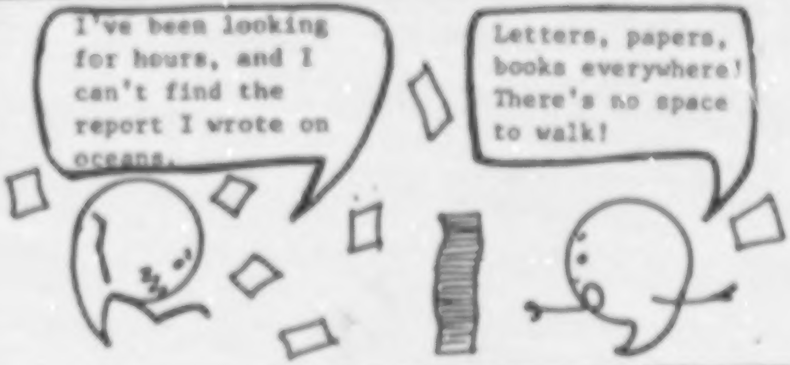
PROBLEMS

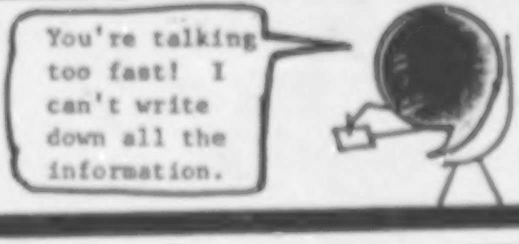
SOLUTIONS

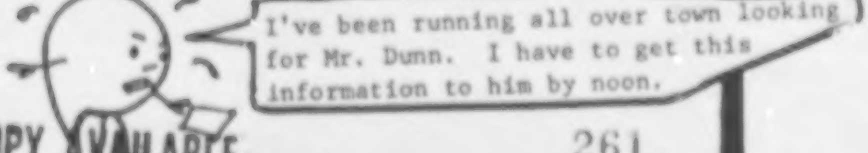

I can't read this information. The writing isn't clear.

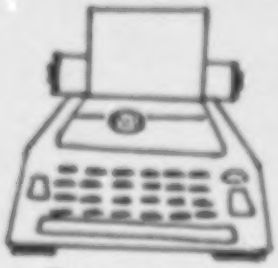

Only 1 copy? But there are 10 of us who need this information!

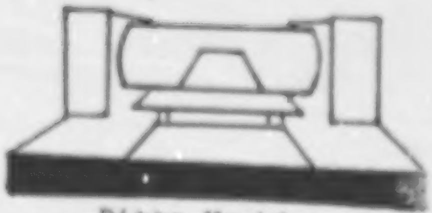

I've added this up 5 times and gotten 5 different answers! I'll never get this information straight.

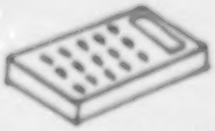

I've been looking for hours, and I can't find the report I wrote on oceans.
Letters, papers, books everywhere! There's no space to walk!

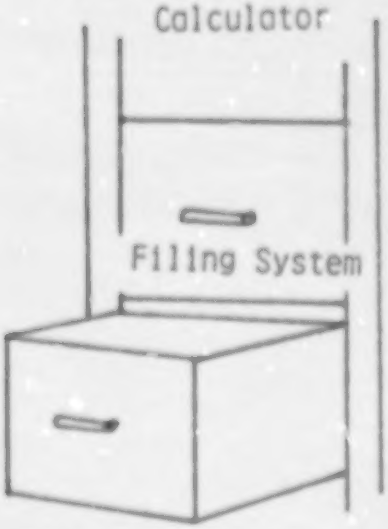

You're talking too fast! I can't write down all the information.

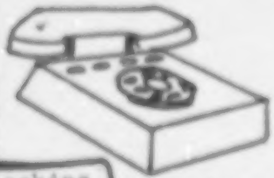

I've been running all over town looking for Mr. Dunn. I have to get this information to him by noon.

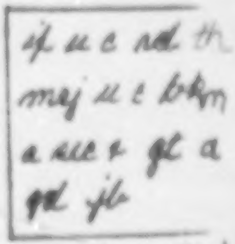

Typewriter


Ditto Machine


Calculator


Filing System


Business Telephone


if u c rd th
mnj u c bkm
a sec & gt a
gd jb
Office Code

BEST COPY AVAILABLE

Typewriters reproduce letters, numbers, and some other symbols that look like print. Typewritten information is easier to read than handwritten script, and typing is faster than writing -- once you know how to type.

Ditto Machines reproduce up to 100 copies of information.

Calculators do math problems, like addition, subtraction, multiplication, and division rapidly and accurately.

Filing Systems make it possible to arrange, keep track of, and find information easily and quickly. Some systems classify information by number, some by letter of the alphabet, and some by subject matter.

Office Codes, like speadwriting and shorthand, make it possible to write down information fast. For instance, it's a lot faster to write the symbol for "Dear Sir" (/) than to write out the words. Try it!

Business Telephones help bring information into offices and get information out of offices, and they do it fast.

Machines, Codes, and Systems like these save time and energy for people, and they help everyday business routines run smoothly and efficiently.

BUSINESS AND OFFICE GOAL:

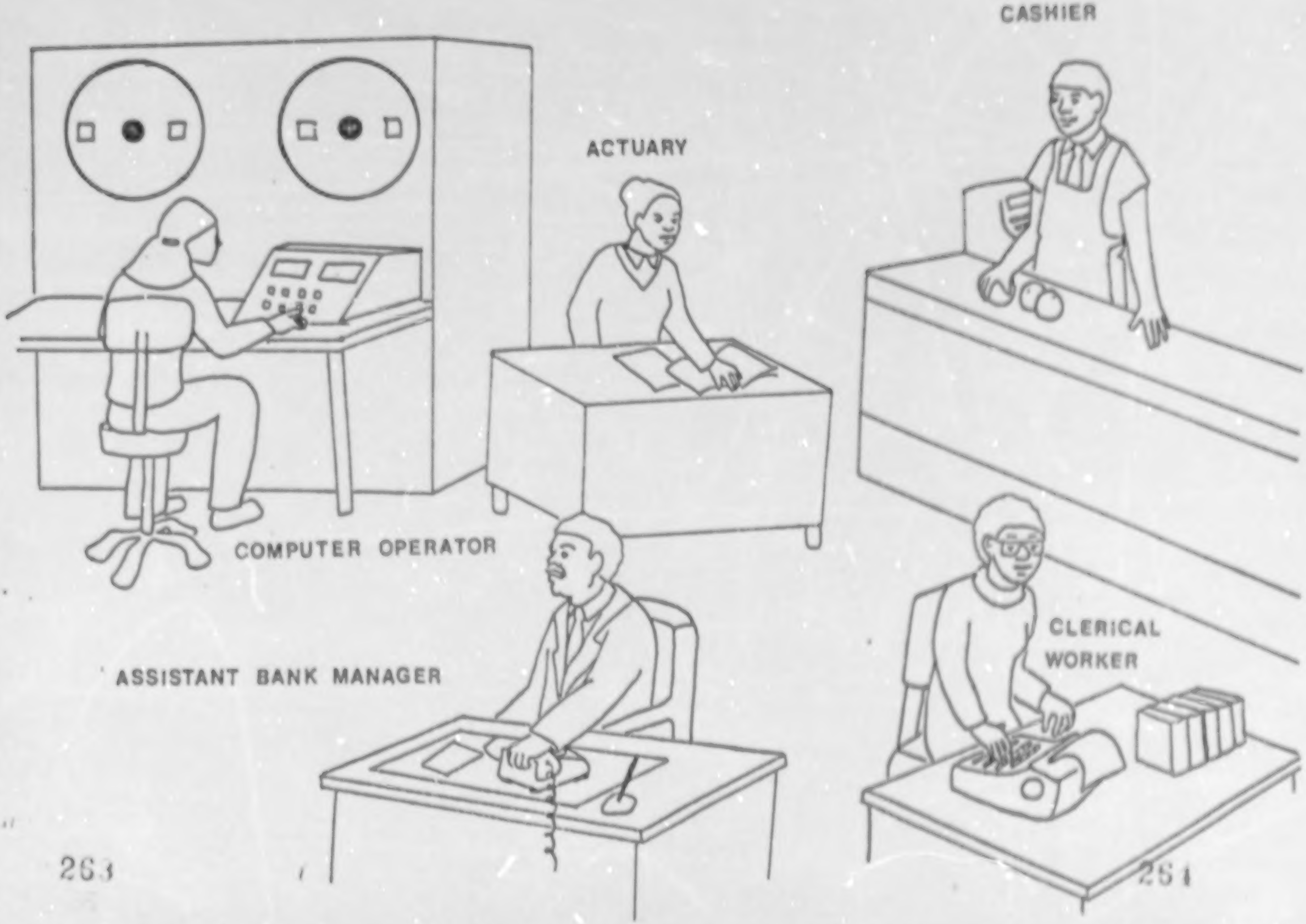
Choose 1 Business and Office skill you'd like to learn.

HINT:

Start by finding out who can help you with what you want to learn.

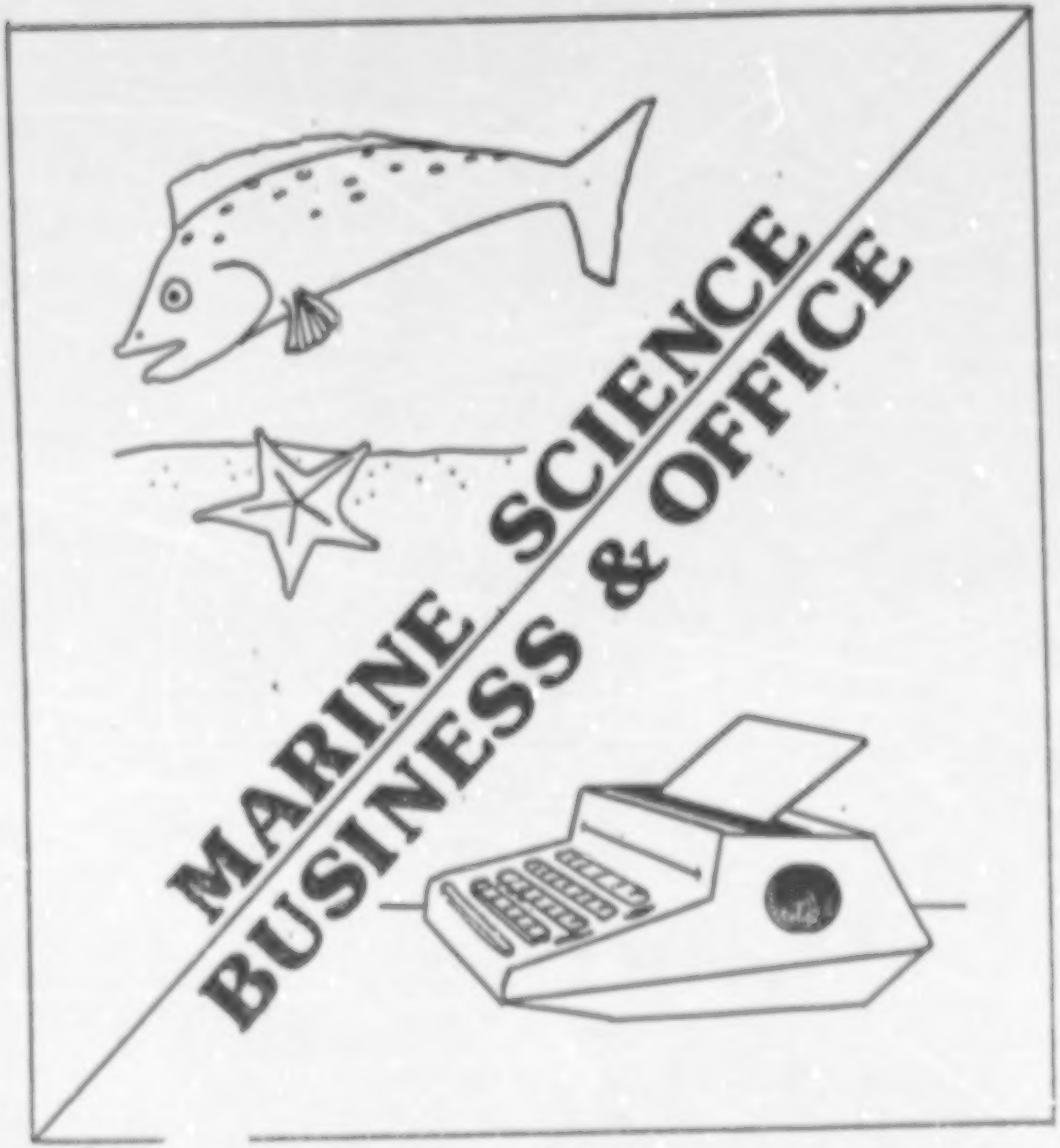
Level B7

BUSINESS & OFFICE


CASHIER
ACTUARY
COMPUTER OPERATOR
ASSISTANT BANK MANAGER
CLERICAL WORKER

B7-DMGA-4

A Research Goal



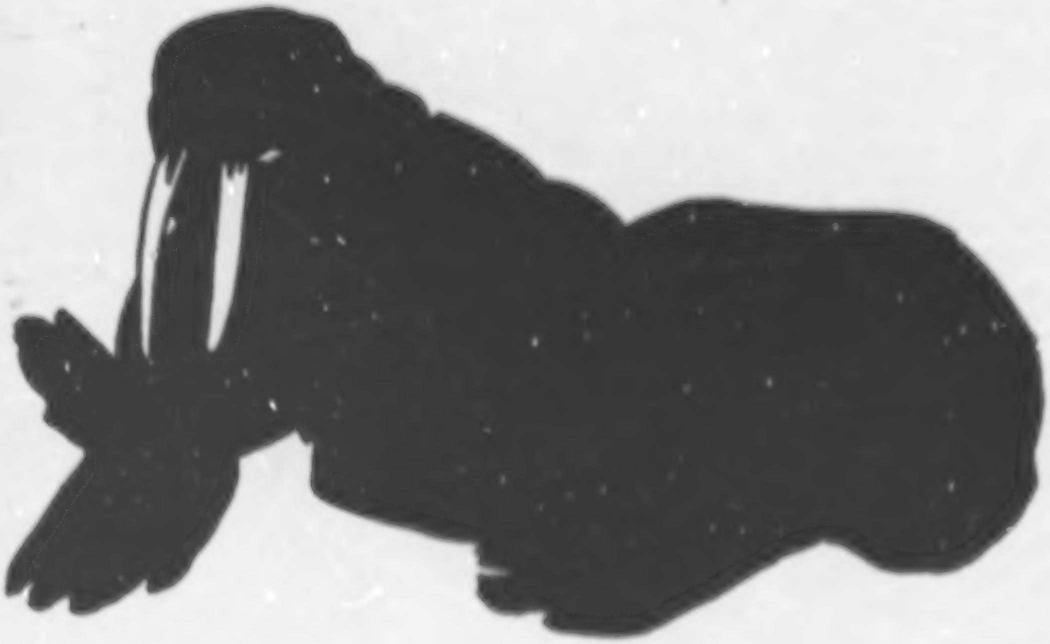
Directions:

1. Read about the steps Floyd takes to find out and present information about something he's interested in.
2. Choose something you're interested in learning and telling others about, and use the same steps Floyd uses to reach his research goal.

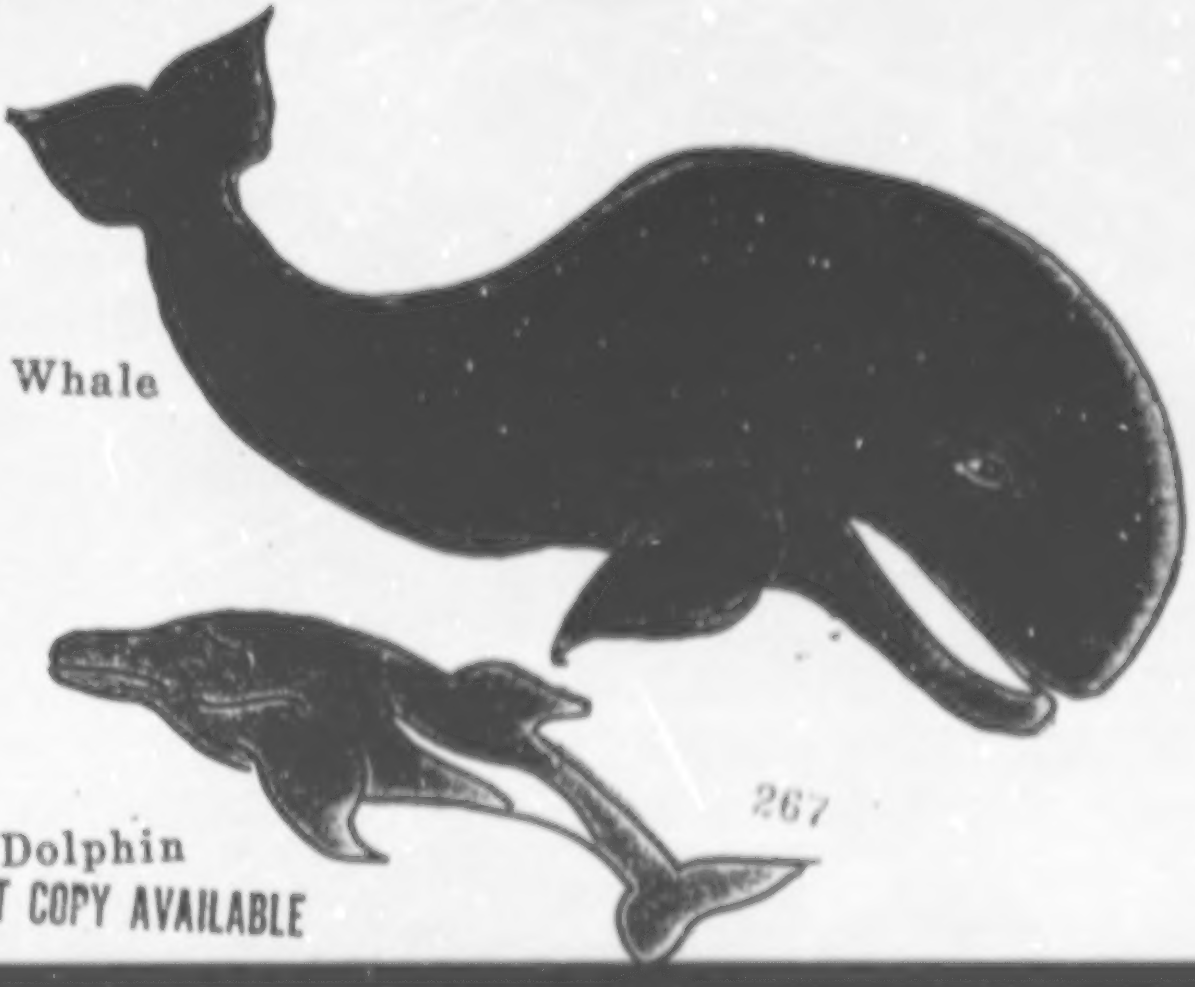
Materials:

Included:
  Research model
  Pictures

Needed:
  None



Walrus



Whale

Dolphin

BEST COPY AVAILABLE

Next, Floyd organizes the information.

WHAT IS A SEA MAMMAL?

I. A sea mammal is a mammal that lives in the sea. Characteristics of a mammal:

- A. They are vertebrates (have backbones).
- B. They breathe by means of lungs.
- C. They are warm-blooded.
- D. They have hair that grows out of their skin.
- E. They give birth to live young.
- F. They feed their young milk from special mammary glands.

II. These are some kinds of sea mammals:

- A. Dugongs
- B. Manatees
- C. Whales
- D. Dolphins
- E. Porpoises
- F. Seals
- G. Sea lions
- H. Walruses

WHAT ARE CETACEANS?

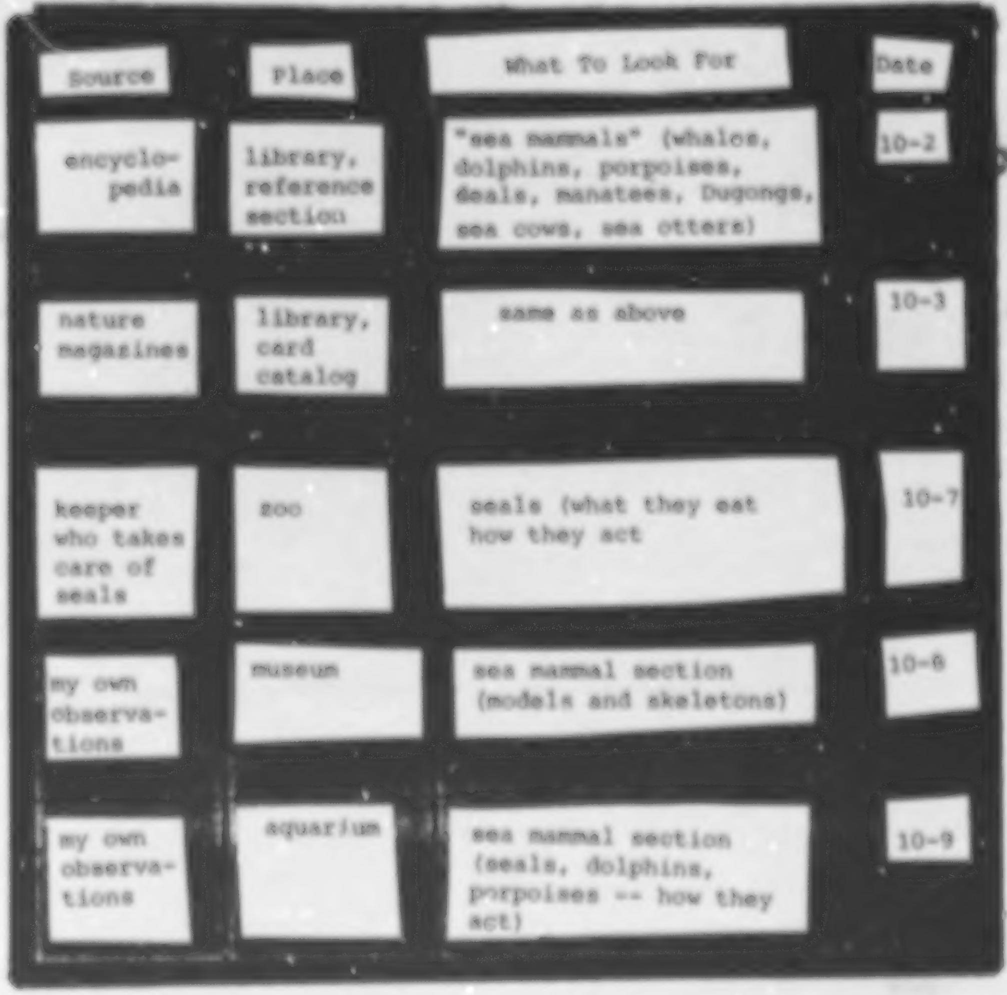
Whales, dolphins, and porpoises are cetaceans. That means they are mammals that have returned to the sea. They have remains of leg bones in their bodies. Cetaceans live totally in water. They bear live young in the water. With the help of a "grandmother-nurse" they immediately bring the newborn calf to the surface of the water to breathe.

UNUSUAL FACTS

Echolocation -- This is a method of navigation using sounds. The whale produces sounds in its nasal sac system and then listens to the echoes produced when these sounds hit objects and reflect back to the whale. Whales can determine distance and direction by listening to these sounds.

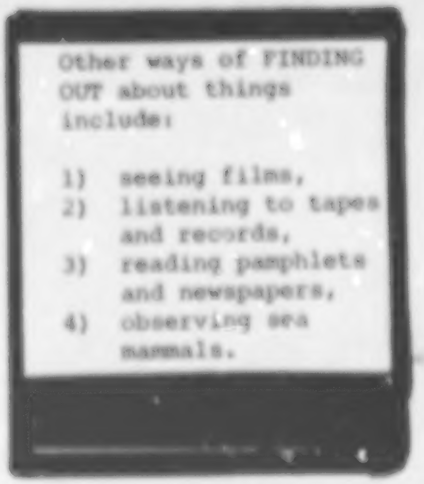
Tusks -- Walruses are the only seals that have tusks. Narwhals have only 2 teeth, and in most males the left one develops into a spiral tusk up to 9 feet long.

Floyd's plan includes this chart.



Source	Place	What To Look For	Date
encyclopedia	library, reference section	"sea mammals" (whales, dolphins, porpoises, seals, manatees, Dugongs, sea cows, sea otters)	10-2
nature magazines	library, card catalog	same as above	10-3
keeper who takes care of seals	zoo	seals (what they eat how they act	10-7
my own observations	museum	sea mammal section (models and skeletons)	10-8
my own observations	aquarium	sea mammal section (seals, dolphins, porpoises -- how they act)	10-9

He checks things off as he does them.



Other ways of FINDING OUT about things include:

1) seeing films,
2) listening to tapes and records,
3) reading pamphlets and newspapers,
4) observing sea mammals.

Finally, Floyd chooses a method to present what he found.

WHALES

Baleen (2 blow holes)
  1. right whales
  2. gray whales
  3. rorquals

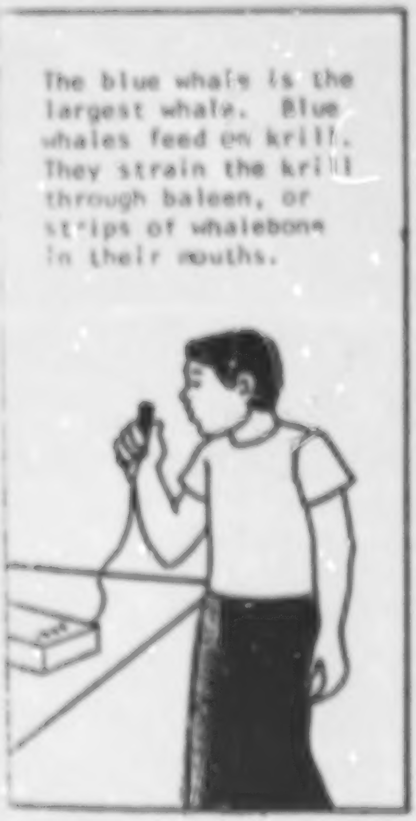
Toothed (1 blow hole)
  1. sperm whales
  2. beaked whales
  3. belugas and narwhals
  4. dolphins and porpoises
  5. river dolphins

SEALS

Eared
  1. fur seals
  2. sea lions

Earless
  1. harbor seals
  2. elephant seals

Walruses

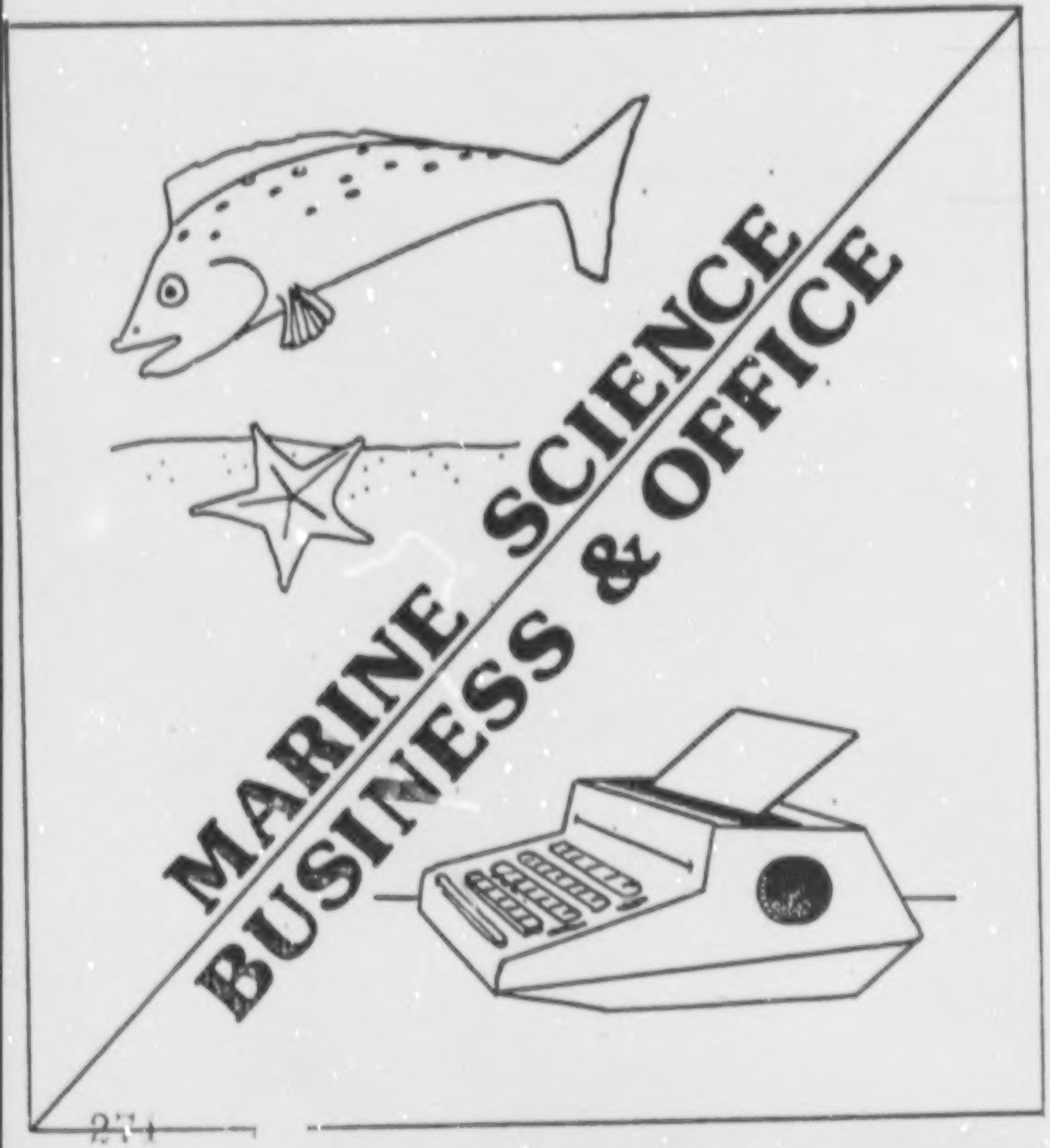


The blue whale is the largest whale. Blue whales feed on krill. They strain the krill through baleen, or strips of whalebone in their mouths.

Seals and Dolphins

B7-DMGA-5

The Cape Cod Compromise


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

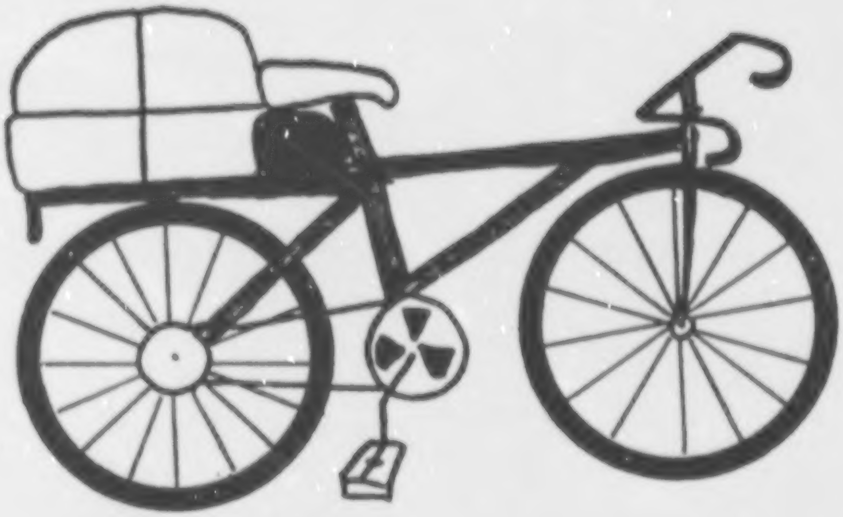
Read the story about a group of people who follow all the steps on the decision making/goal attaining pathway and mountain.

Materials:

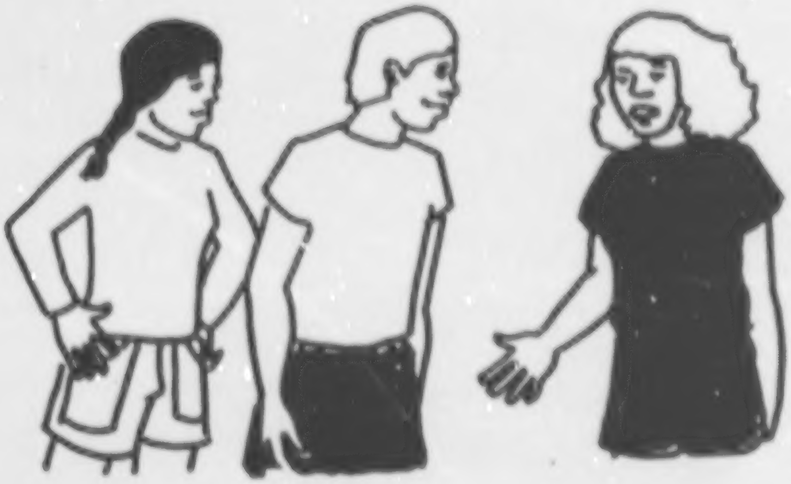
Included:
- Story
- Pictures

Needed:
- None

The Cape Cod Compromise



When I think about my adventures I always think about this story. It was the spring of 1971 and I was sixteen years old. My favorite thing was my new, red, ten-speed bike. All my friends had bikes too. We had fun going on short bike trips together. One day I heard about two kids who had biked across the country. It took them the whole summer. The idea of a long bike trip was really exciting to me. My friends liked the idea, too. We wanted to take a long bike trip. Maybe all the way across the country!



We started getting ready for a long trip. We went on bike trips that lasted all day. That way we could get used to long rides and sitting on our bikes all day. The kids who had already gone across the country gave us some help. They told us not to carry packs over forty pounds, to get good road maps, and to always carry a first aid kit and a bike repair kit. We also read bike repair books that told us all about how bikes work and how to fix them if they broke down.

Everything looked good until we told our parents about the idea. Boy, did we have an obstacle! Some of our parents didn't like the idea of us riding all over the country. They said a shorter trip would be better.

One night we all met to talk about our problem. We had two choices: We could take a long trip. But then some of us would not be able to go. Or, we could take a shorter trip, and all of us could go. We valued going on a long bike trip, and we also valued sharing our experience. We decided to make a short trip together.

My grandmother said she would help us by letting us use her home on Cape Cod. It would only take us four or five days to get there. So we made plans to go to Cape Cod.

So that our parents wouldn't worry about us, we planned to take turns calling home each night. Then our parents could call each other with the news that we were all right. Since bikes are not allowed on big highways, we agreed to use back roads. We also planned our route from one campground to another. Then we planned what we would need to take and how to carry it. When we were all ready, we called my grandmother to let her know when we were coming.

At last it was time to start. We were glad that we had made such careful plans. By following our plans the trip was pretty easy. We saw many new places and met many nice people on our ride.

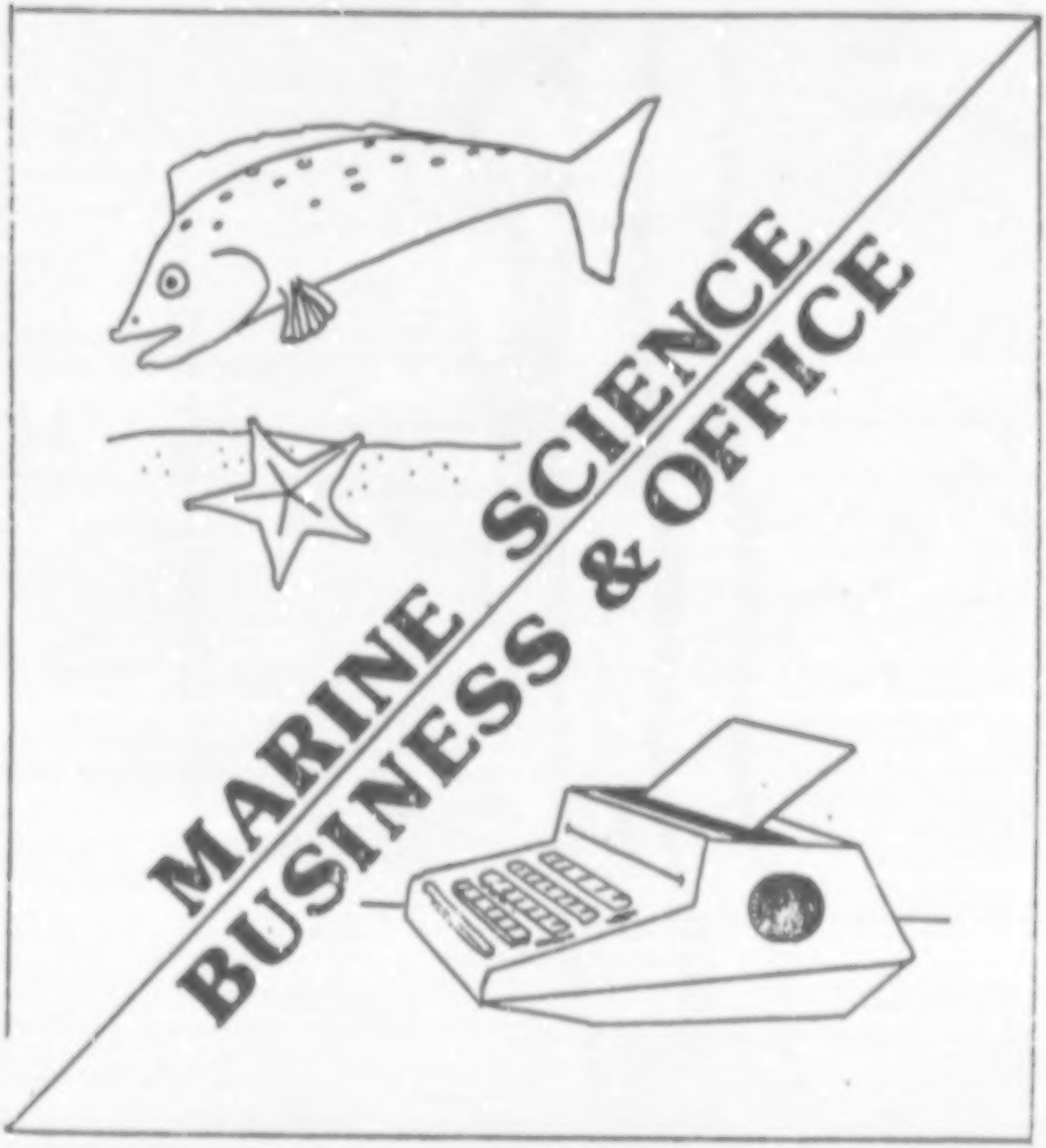
Every night after we had set up the tents and eaten dinner, we talked about our progress. Did we come as far as we had planned? Had we called home? Every morning before we left, we checked our bikes to make sure they were all right.

Once we got to Cape Cod, we rested and played on the beach. But we also had some problems to think about. I was sick, and I didn't think I could make the bike trip back home. One kid's bike had broken down and would cost a lot to fix, so he couldn't ride home. The kids who wanted to ride home wanted to see new places. Half of us decided to rent a van and drive home. The others planned a new way home. We all changed our goal a little, but the trip was great!

Once a year we get together and remember our trip to Cape Cod. None of us will ever forget that adventure.

B7-DMGA-6

Clemencia Conquers


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the story about a youth who follows all the steps on the decision making/goal attaining pathway and mountain.

Materials:

Included:
- Story
- Pictures

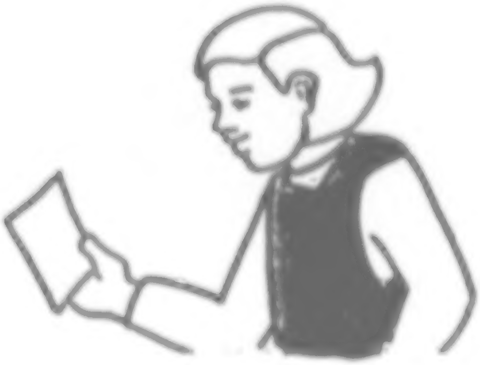
Needed:
- None

Clemencia Conquers

Clemencia had had polio. She wanted to learn how to swim so that she could get strong again. She was afraid that she wouldn't be able to do it.

"I can't be so chicken. I will learn how to swim this year, even if it is hard work," she said to herself.

Clem remembered that Dr. Morris had given her the phone number of someone who taught swimming. She remembered other times when she'd been scared about doing something, like making the trip from New York to Colorado alone. She had felt good about herself after she had done it.



"It wouldn't hurt to call," she thought. So she did.

"Hi. I'm Clemencia Renos. I want to take private swimming lessons."

"Hi, Clemencia. I'm Lori Torres. I teach several classes, but I don't usually give private lessons. Why do you want private lessons?"

Clem hesitated. She knew that it wasn't just the hard work that scared her. She got angry when her legs wouldn't work right. She was also shy and a little afraid of the deep water.

"Well, I'm handicapped," she said. "My legs don't work well, and I'm very self-conscious. Plus I'm really scared, and I don't want people to know," she blurted out.

Lori explained that she taught a special class for people with handicaps. Most of them were self-conscious, and class really helped them.

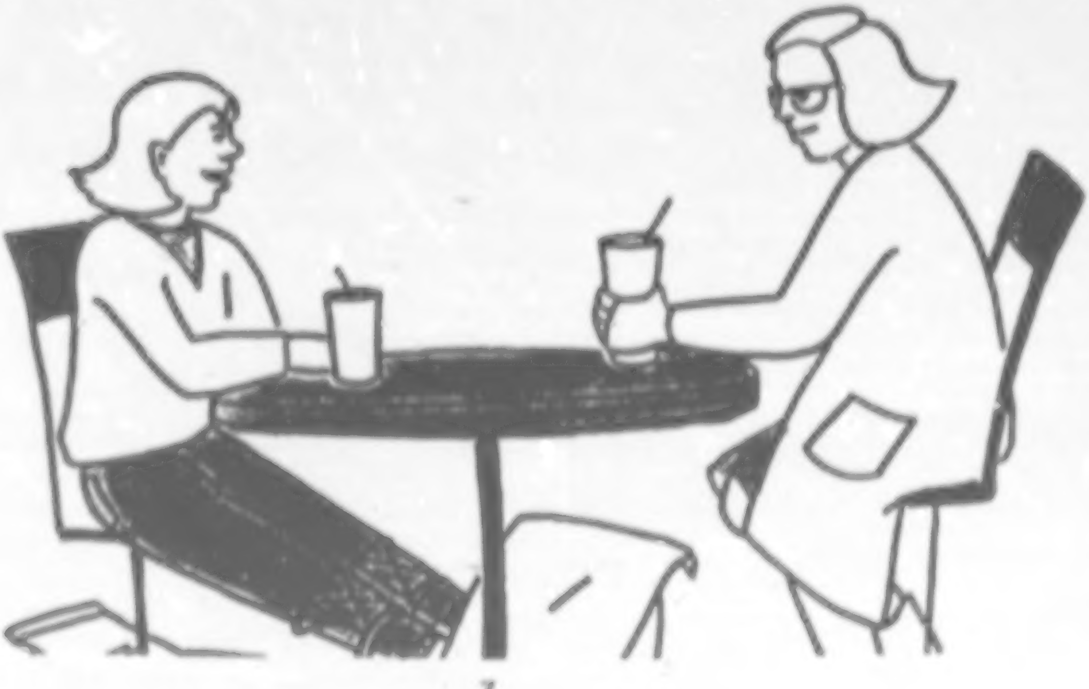
Clem was still scared about group lessons. Lori mentioned that Clem had other options, too. In addition to her special classes, private lessons were available at the YWCA. Now Clem really had to think.

She knew that the "Y" was a long way away. There were no buses. She would have to ask her mother for a ride, and that would make her feel dependent. But not learning how to swim also made her feel dependent.

Clem valued feeling independent. Even though her parents were always willing to help, it wasn't what she wanted. She wanted to be independent and self-confident. Learning to swim with a bunch of people would be a big step. She would have to get over her shyness, but she knew that was what she wanted. So she decided to take the risk and join a class.

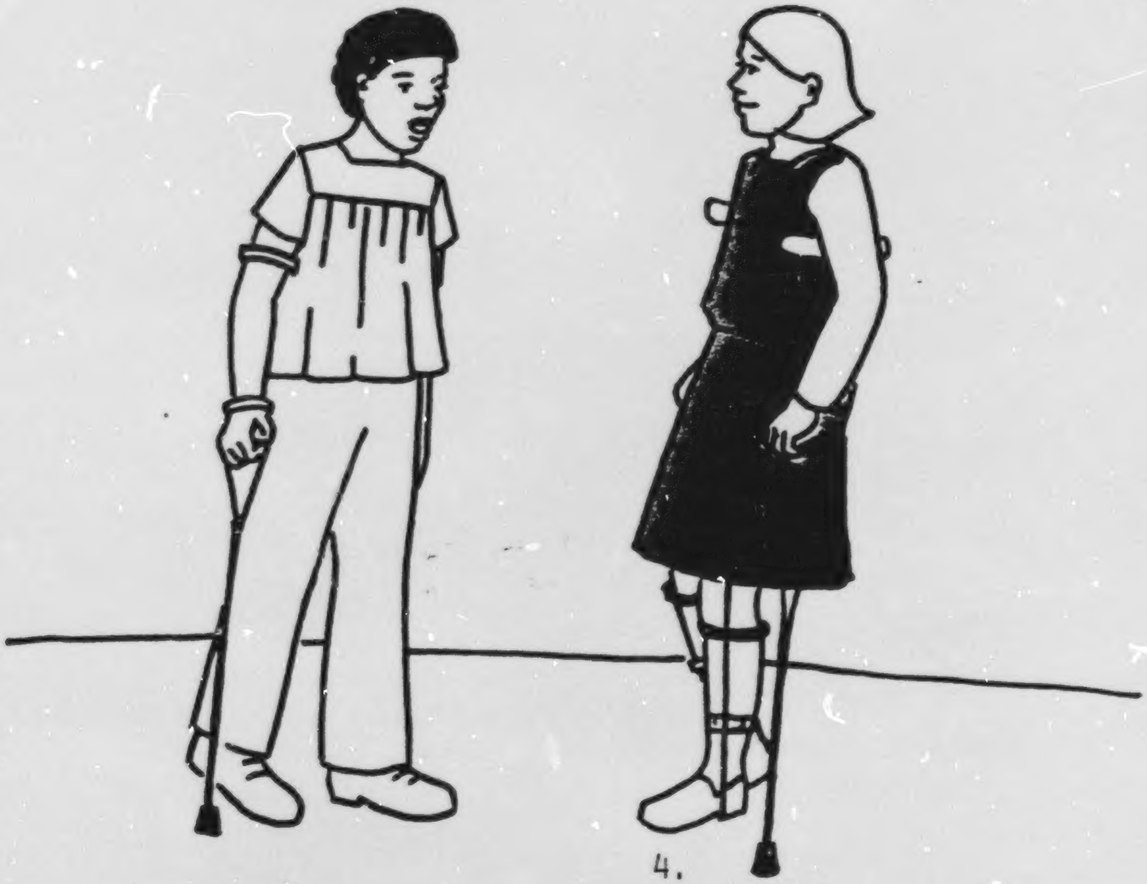
The next day she called Lori and asked when the classes were starting. Lori said they would last three months and would start next week. Wow, did she have a lot of work to do!

She would need a bathing suit, so her mother took her shopping. It was a long process, but she found one she really liked. Then Clem and her mother had milk shakes.



Next, she enrolled; she met her teacher and signed up for the morning sessions. They met three times a week.

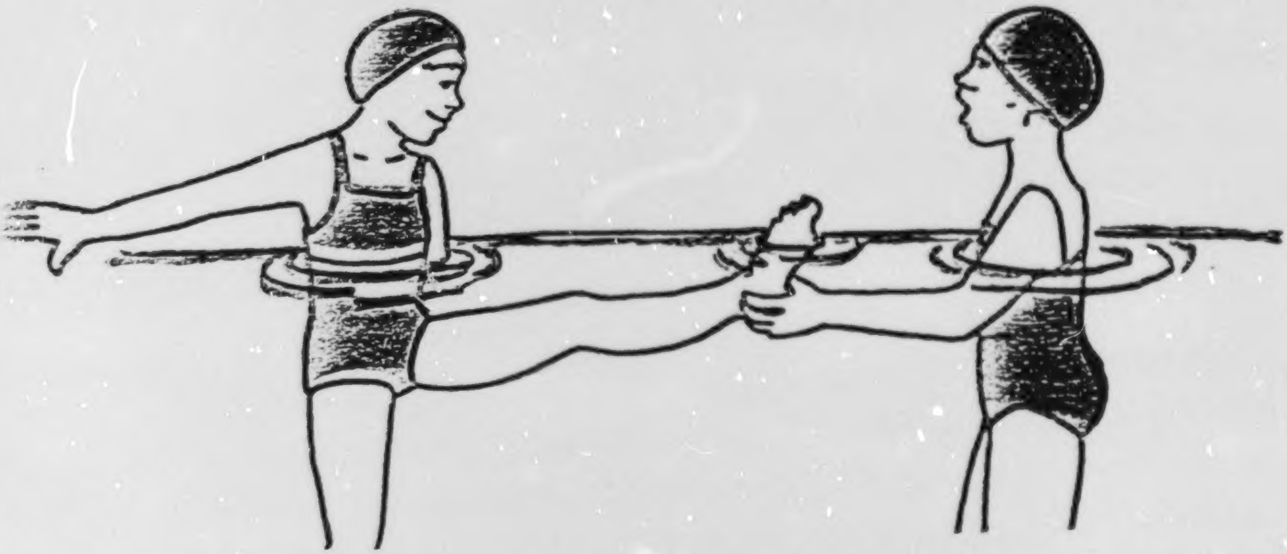
When classes began, Clem found that learning to swim was fun. She did exercises before class by herself and then with a partner, Janice. Janice had been in a car accident. She had lost the use of one leg and one foot. She was just learning, too. Clem liked class. She practiced her swim strokes. She learned to swim back and forth across the pool and timed herself. She checked her progress by timing her practice over a period of six weeks. After a while she could really see a difference.



Everyone else was working, too. Learning together was fun! One day Janice noticed how well Clem was doing and how much stronger she had become.

"I'm thinking about joining a free-style class next month," Janice said. "Want to join with me?"

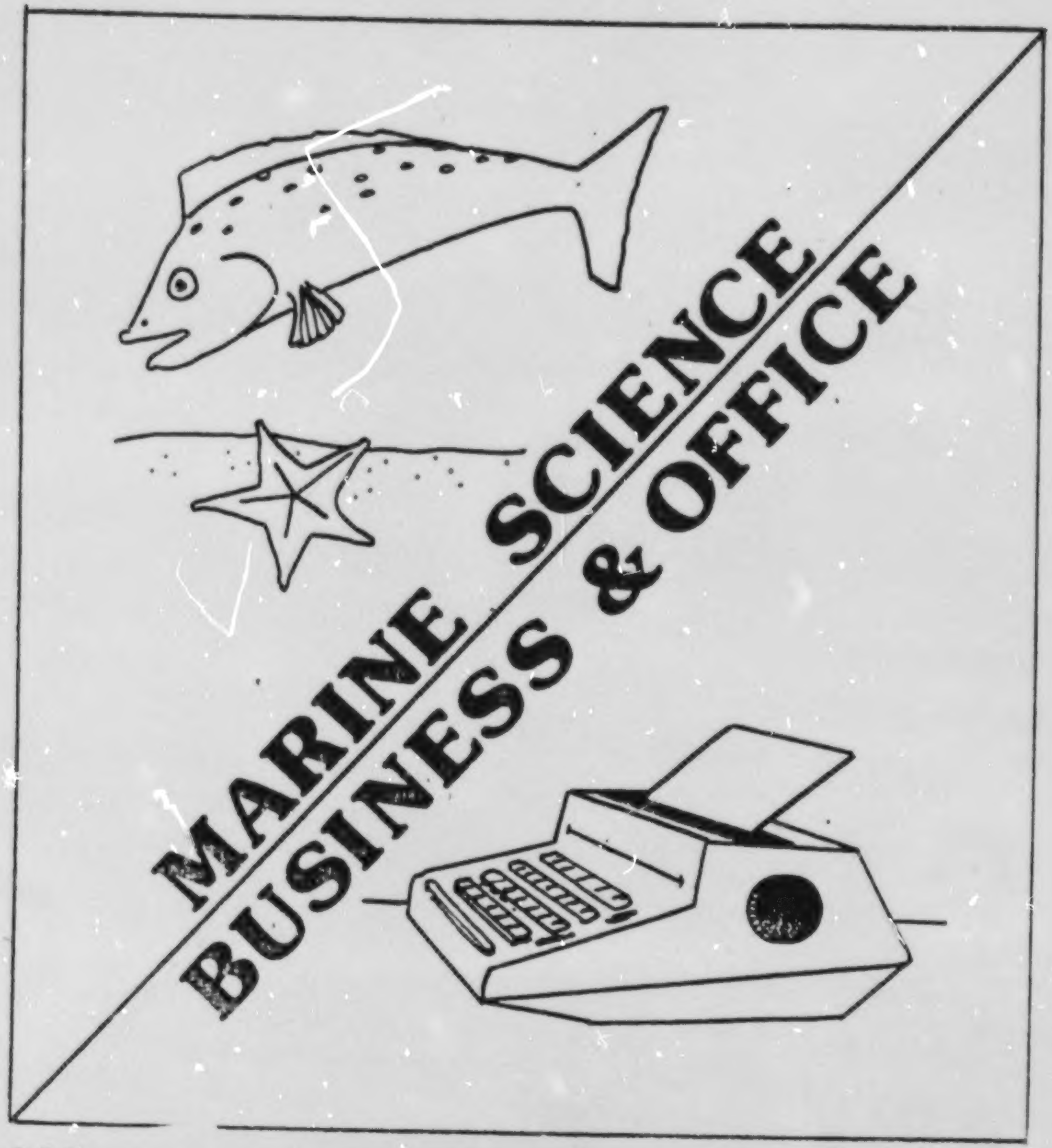
Clem was surprised, but then she looked at her friend and giggled. "Why not? A new goal is just what I needed."



That night Clem thought about how far she had come. "I just wanted to learn how to swim and gain a little self-confidence. Now I'm joining a free-style swimming class." She smiled. Taking risks was really all right.

B7-DMGA-7

Chris and the Free Time Find


MARINE SCIENCE
BUSINESS & OFFICE

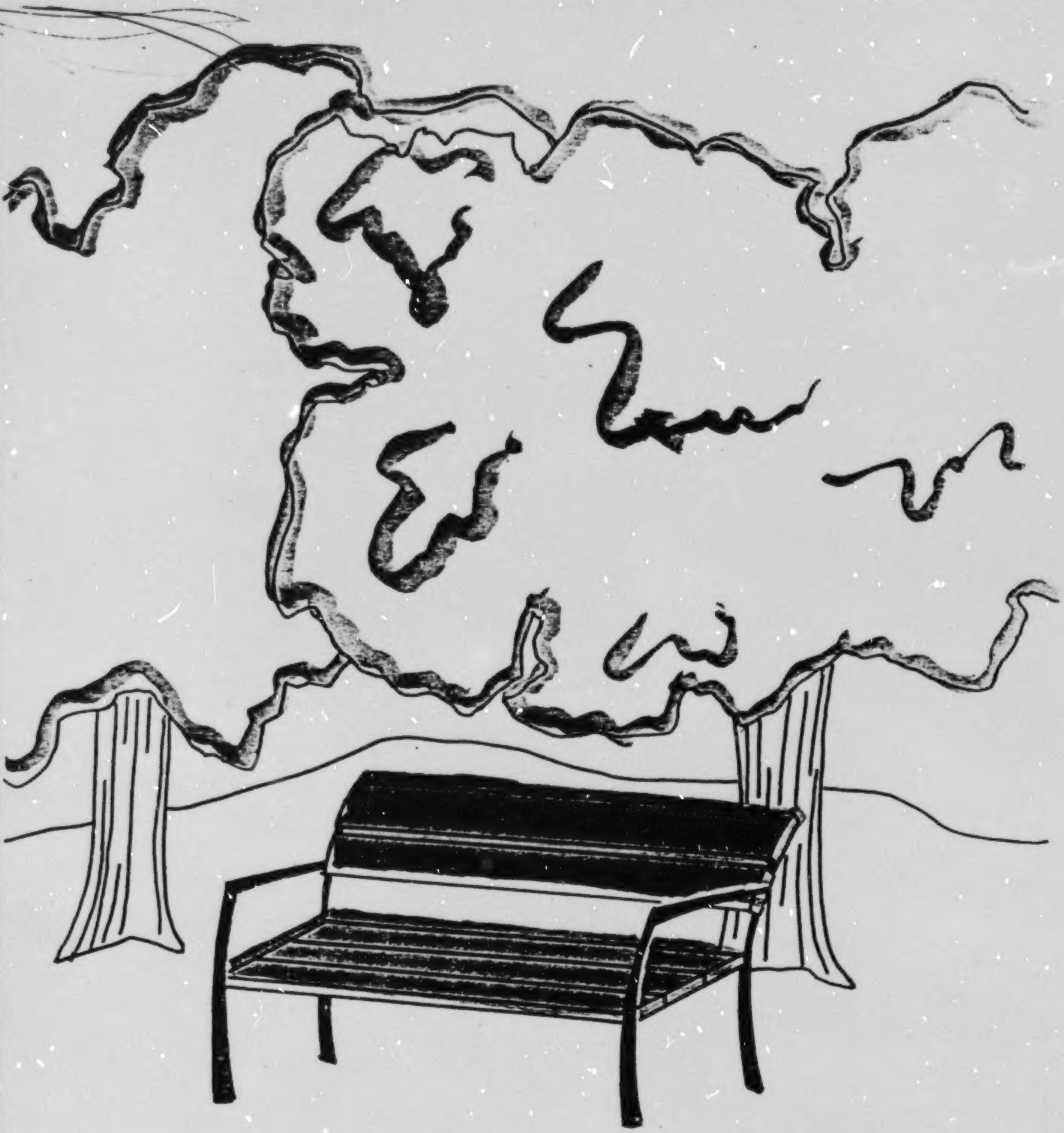
Directions:

Read the story about a person who follows all the steps on the decision making/goal attaining pathway and mountain.

Materials:

Included:
  Story
  Pictures

Needed:
  None



Chris was sitting alone on a park bench. He and Betsy had sat there together most of the summer, since graduating from high school. But now Betsy was working as a stenographer. Chris felt lonely, and even jealous of Betsy. She had a job and he didn't.

Chris had thought since his grades had been good that finding a job would be a snap. Also, he didn't want just any job, he wanted a job that paid well.

One day he and Betsy ran into each other. "Chris, haven't you found a job yet?" she asked.

Chris was embarrassed, but he didn't want to show it. "Well Betsy, I've got all the rest of my life to work. Let's just say I'm on vacation until the right job comes along."

"That's not how it works, Chris, you've got to get out there and look. You've got to get out there and sell yourself." Betsy stared at her friend; she was angry. "Do you think a job is just going to come along and hit you in the face?" She turned and stormed off.

Now Chris really felt lonely, and angry at Betsy for being so hard on him. He kicked at the newspaper under his feet. The wind blew it back at him. As he got up to throw it in the trash can, he decided to look for a job. Maybe he wouldn't start out as president of a bank, but Betsy was right. You had to start somewhere. If she could get a job, he sure could too. They'd taken shorthand class together; his grades had been even better than hers. Besides, he'd even had some experience. Last summer he'd worked in his uncle's law office filing legal briefs. Instead of throwing the newspaper away, he sat down and began to read the want ads.

Court Stenographer--to $300. Exp. Some filing and typing nec. Ref. Call 278-8720 for intvw. on Thurs.

"I'll apply for this job," he thought. "I'll show her. I have experience filing in a law office. I might not have experience in stenography, but I did get an "A" in the class. References: I'll ask my business teacher. Thursday is three days from now. I'll have to get moving on this right away."

Chris found his teacher, Doris Kloster, after school. He explained what he wanted. "Sure, I'll give you a reference," said Doris. "Just put my name and address at the bottom of your resume."

"Resume?" asked Chris. "I hadn't planned on writing one."

"You should write one to take with you to the interview," Doris told him. "Everybody who's after the job fills out the same application. It's your resume that shows you're different and special. Although some employers don't require resumes, they are impressed by people who take the trouble to write one and bring it along. Your good points and your experience are right there to read about."

"But there isn't time. The interview's on Thursday," said Chris.

"There's time," said Doris. Go to the library. Get this book, How to Write Resumes. After you read it, call me and we'll set up a time to work on your resume."

"I don't know. I'll have to think it over. Thanks, Doris," said Chris. On the way back to his usual place in the park, Chris started to think things over.

Chris thought, "I don't want to make a major production out of this, and spend all my time at it. I just want to apply for this job, sweet and simple. It'll take a long time to get a resume together. I'd have to get the book, read it, get together with Doris, who's way across town. Then it'll take even more time to type. My free time is important to me."

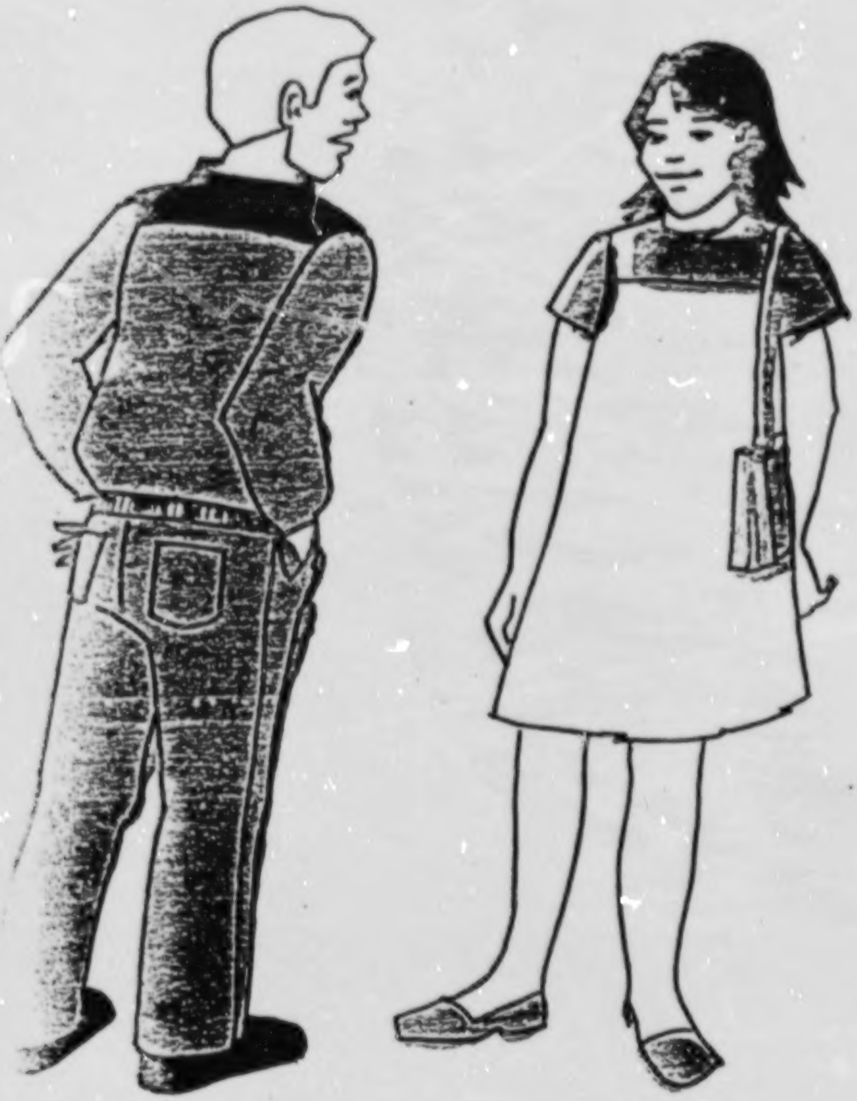
Then he remembered all the things Betsy had said. He realized how important it was to him to do things the best way he knew how. He looked up and there was the bench. "Free time or wasted time, I'll write the resume. I'll read the book and call Doris. I'll also call the employer to set up an interview time!" exclaimed Chris.

Chris got the book from the library and read it. Doris helped him write a resume. She also role-played an interview with him. By Thursday morning, Chris was ready for his afternoon appointment. He was looking forward to it. Being well prepared made him feel good. He thought about all the progress he'd made.

"I'm set for this," he thought. "I've even got more than I need, with a resume and interview practice with Doris. I've got some free time before this appointment. I'll use it to look for more jobs to try for."

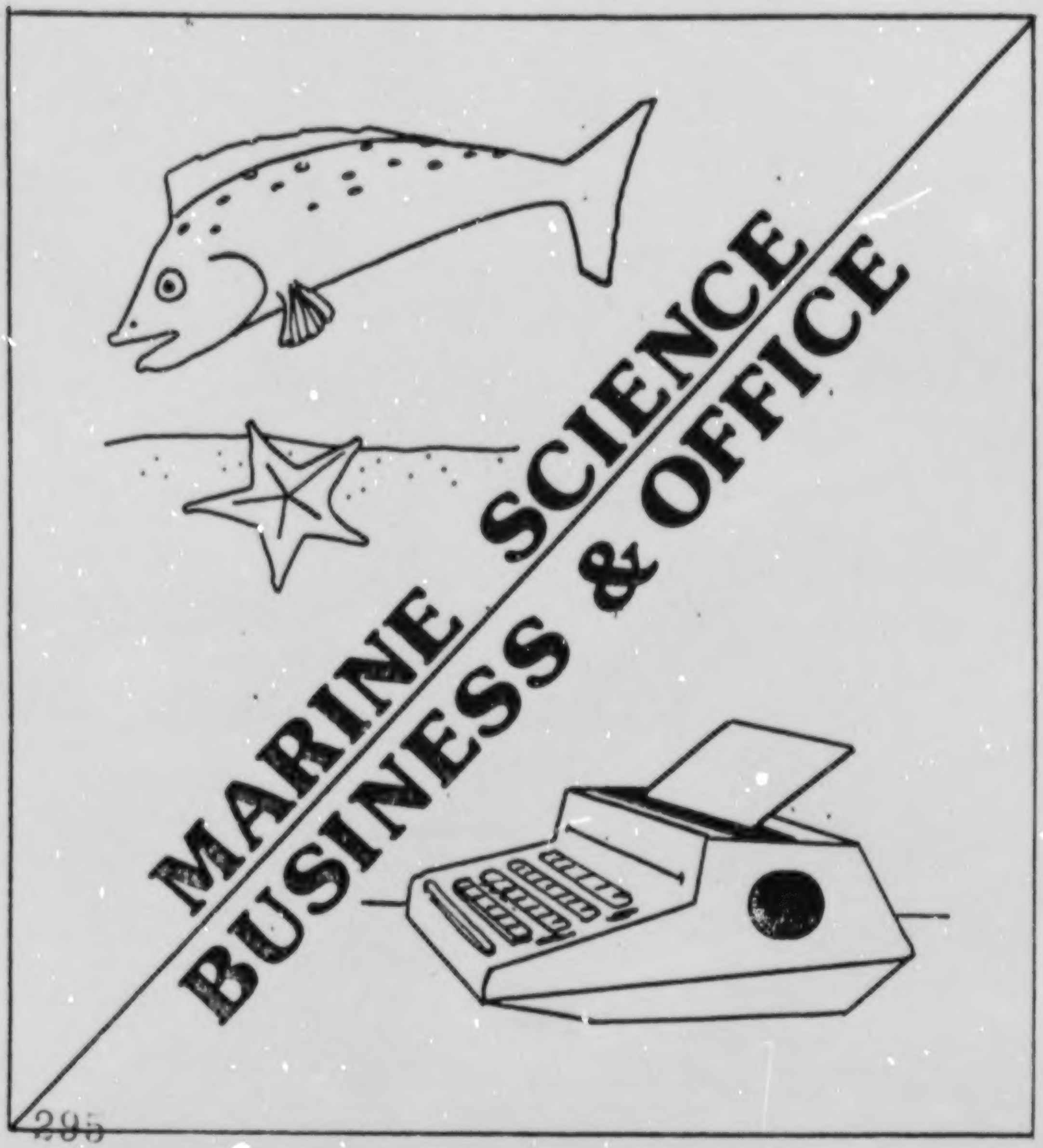
"You look great, Chris," said Betsy. Chris looked up from the want ads he was reading and saw Betsy.

"Betsy, wait till I tell you where I'm going," said Chris. He got up from the bench and started walking and talking with Betsy.



B7-DMGA-8

First Office Party


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the story about someone who follows all the steps on the decision making/goal attaining pathway and mountain.

Materials:

Included:
Story
Pictures

Needed:
None

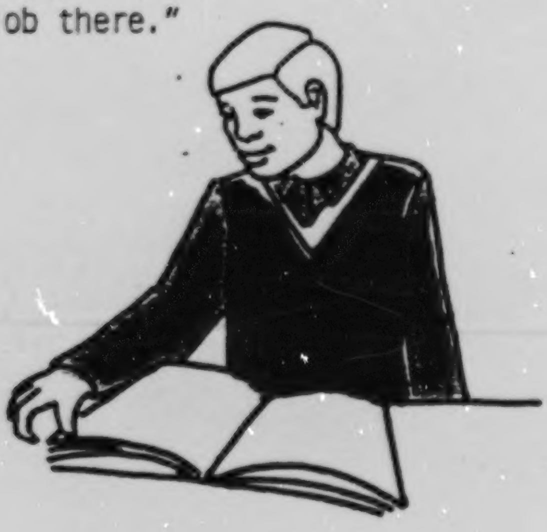
First Office Party

"Delicious, Aunt Millie!" said Thurman, as he helped himself to another cracker with garlic dip. "Who's the party for?"

"It's for Alma, at the bank. She's moving back to her home town, so we're having a farewell party for her tomorrow. Someone's already been hired to do her job when she leaves. It will take a long time for him to get used to things. The bank will hire an extra person, just for the summer."

"I'd like to get that summer job," sighed Thurman, as he bit into another cracker with dip.

"Oh, I thought you'd sell hot dogs at the ball park again this summer. If you want the job, you should do some reading about jobs in a bank. The assistant manager is looking for someone who knows something about how a whole bank is run, and not just one job there."



"How long have you been working, Aunt Millie?"

"Five good years. Everybody in town knows what a great place to work it is. Hey, leave some of that for the party! Thurman, that's why you didn't make any money selling hot dogs last summer. You ate the profits!" she said with a smile.

"Bye, Aunt Millie. I'm going to the library." Thurman got a book called Encyclopedia of Careers. He looked up "Banking" and was surprised to see how many kinds of jobs there were. He copied down something he might be able to use at an interview.

"Competing for this job will be hard," he thought. "That's the biggest obstacle to getting the job. School ends in one month. After school ends, I'll have plenty of time to learn about the banking business before the job starts. Aunt Millie's already been a big help to me. I know she'll help me even more if I ask. Let's see now, I can ask Aunt Millie to put in a good word for me at the bank. I'll get the job for sure then. Another option is to study so that I'll convince the interviewer to hire me. I might not make the impression I want to, though. Sometimes people think I'm too bookish, smart, and anxious."

Thurman thought about these two options and their possible outcomes for the next three weeks. He sure valued getting the job. He knew Aunt Millie could help him if he asked her. But he also valued doing things on his own. He decided not to ask her for a recommendation. Then, he made a plan to get the job. He got an application and practiced filling it out at home. He wrote a speech and rehearsed it at home. He also dressed in different outfits to see which one he looked best in.

At the interview, he acted very calm and proud. He filled out the application quickly. He thought he made a good impression on Brenda Manx, the person who interviewed him. A week later, Thurman checked his progress. He did this by calling the bank to see if a decision had been made about who would be hired. "No," Brenda told him. "We should reach a decision in a few days."

He hung up the phone. He started pacing the floor. He really wanted that job. Finally he couldn't stand the suspense any more. He called Aunt Millie to ask her to recommend him for the job.

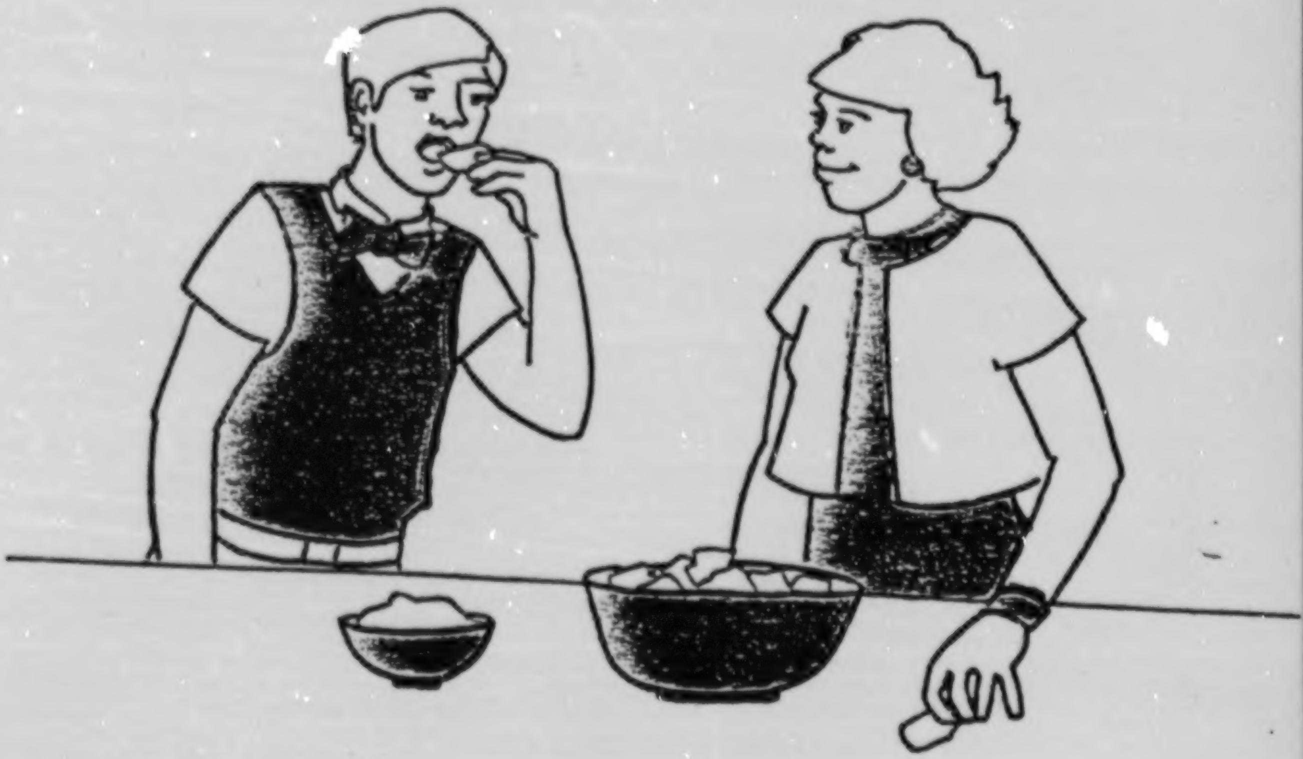
"Sure, Thurman, I'll talk to Brenda for you. Say, can you come over tomorrow?"

"I'll be there. Thanks, Aunt Millie."

The next day when he walked into her kitchen, he found his favorite crackers and dip. "Where's the party?" he asked.

"Right here. You got the job. Congratulations! Brenda will call you tomorrow."

"Aunt Millie, you're great!" He hugged her. "This is my first office party."



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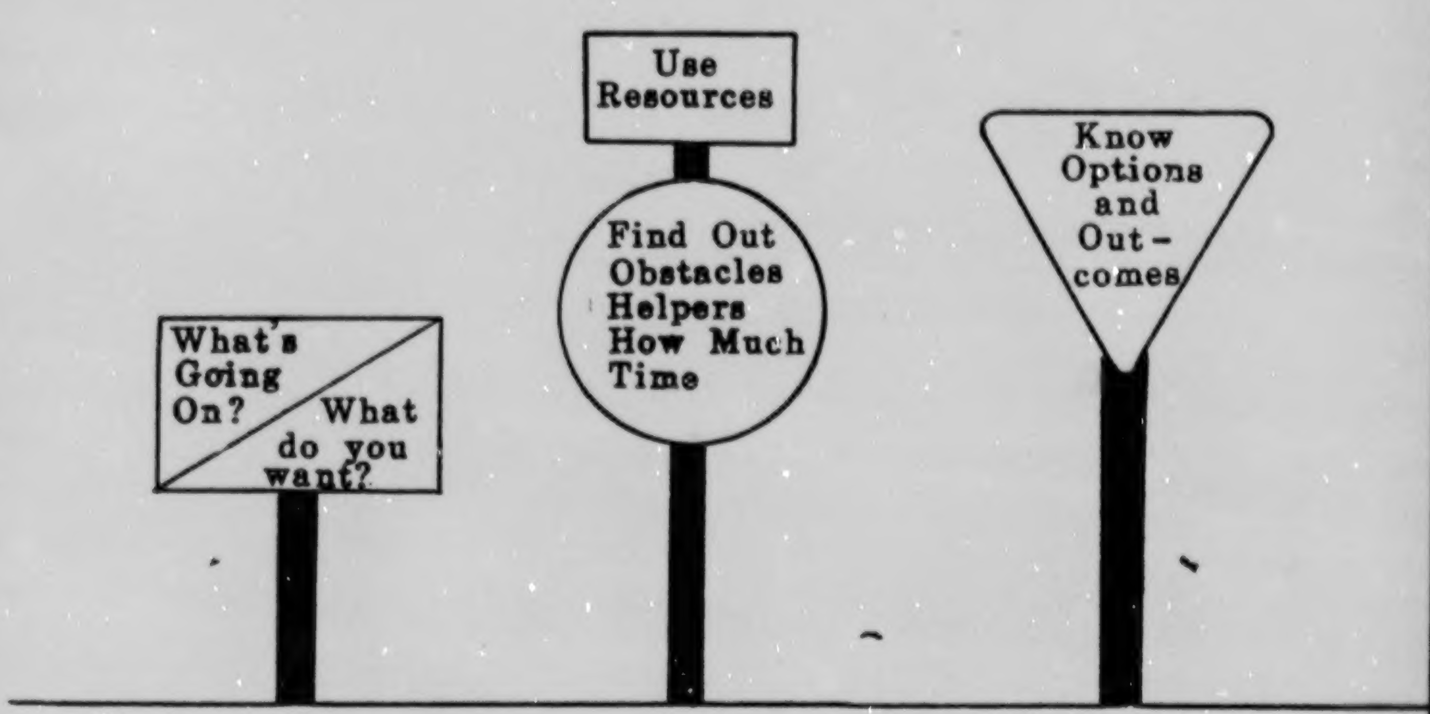
What's Going On?
What do you want?
Use Resources
Find Out Obstacles Helpers How Much Time
Know Options and Out-comes

OBJECT:

Be the first player to place all of your suit cards on your Decision Making/Goal Attaining Pathway and Mountain game board.

PLAY:

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2. During your turn, pick and play as many cards as you can on your game board. You must pick at least one card and discard at least one card.
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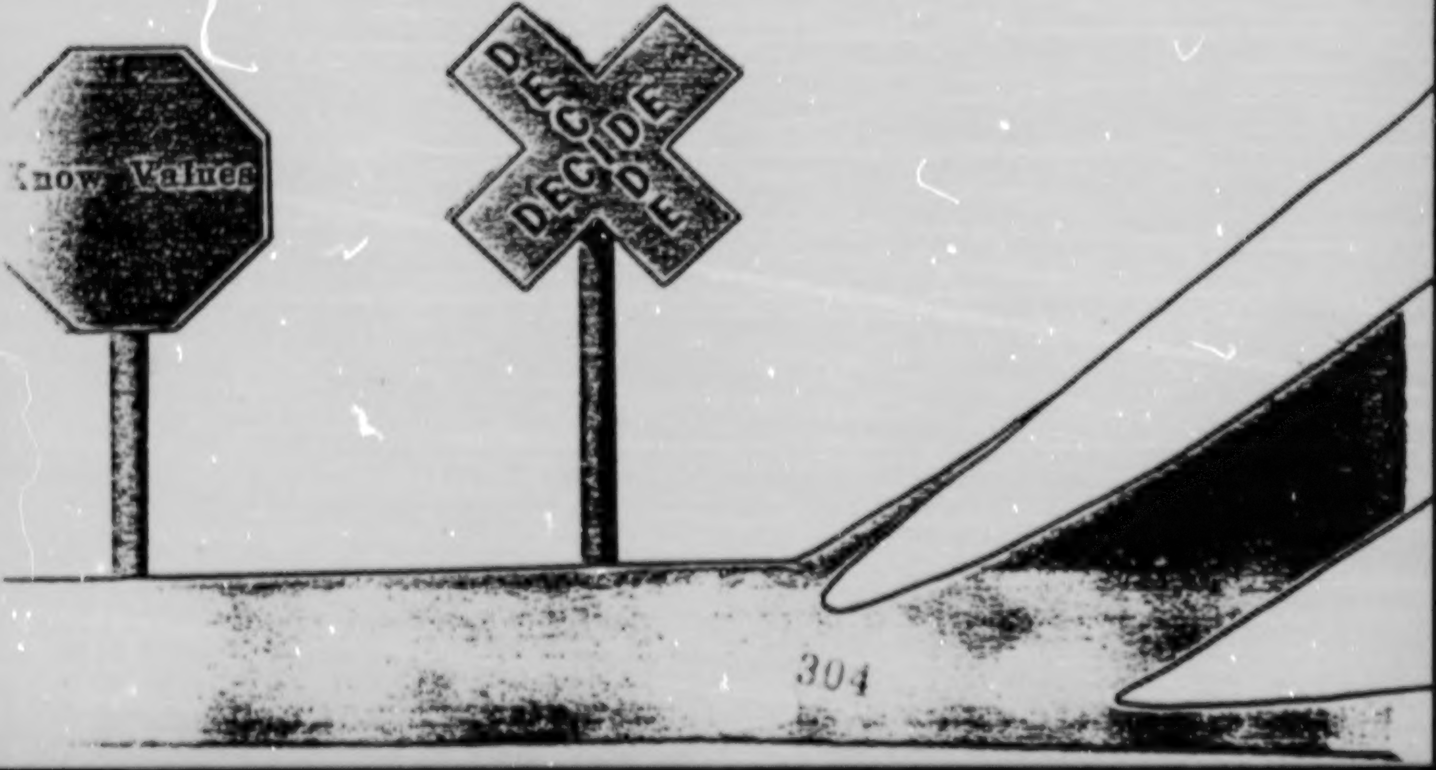
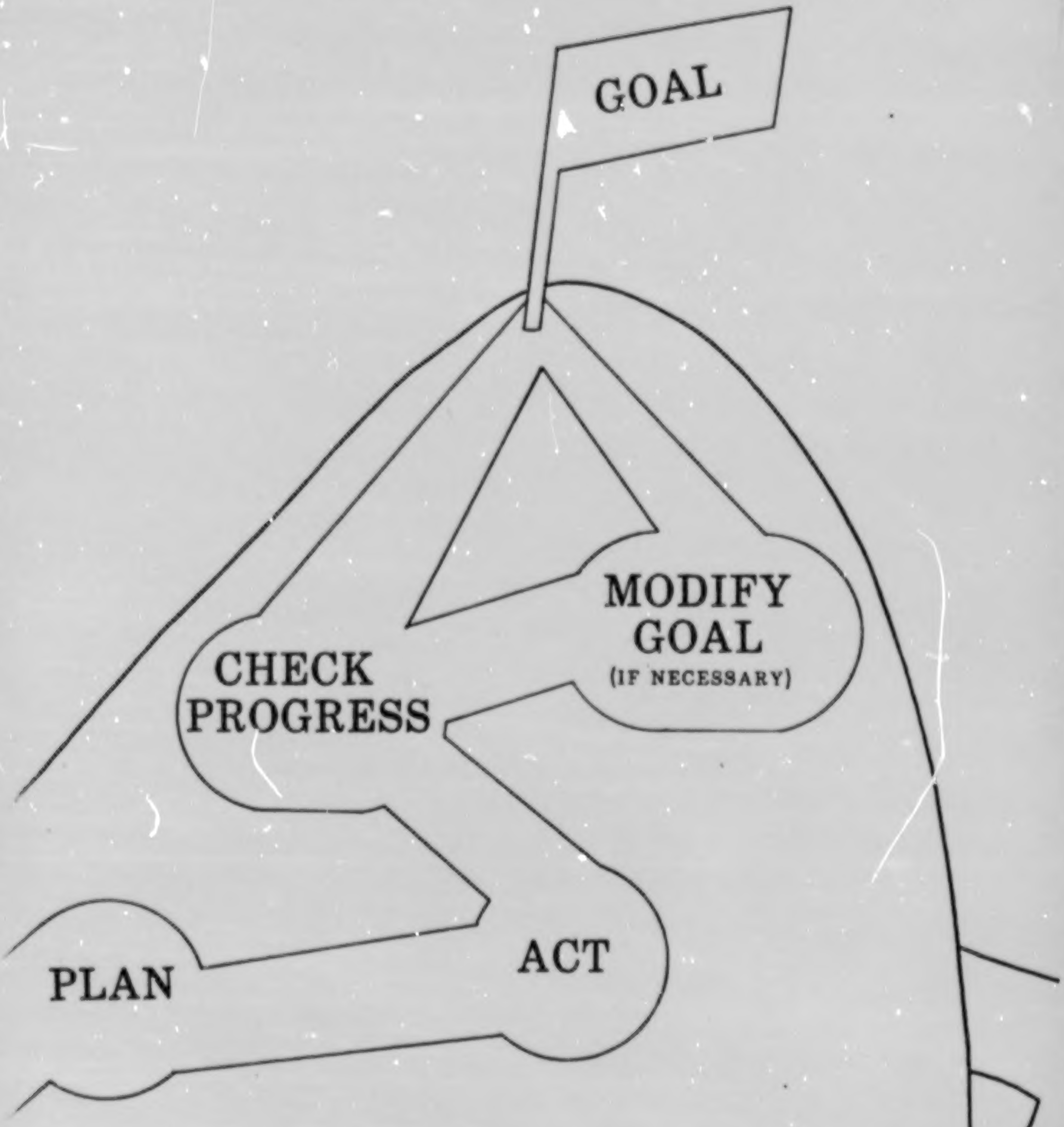



GOAL
MODIFY GOAL
(IF NECESSARY)
CHECK PROGRESS
ACT
PLAN

CLEMENCIA CONQUERS

Do exercises alone and with a partner before class.

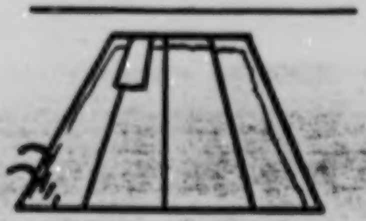
Practice swim strokes.

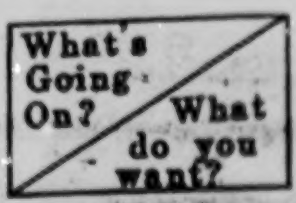
CLEMENCIA CONQUERS

I want to learn to swim.

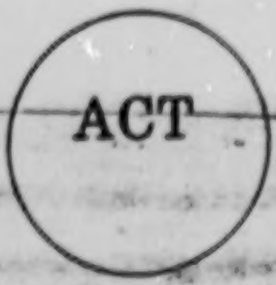
CLEMENCIA CONQUERS

New Goal: Clemencia Joins a Free Style Swimming Class with Janice.

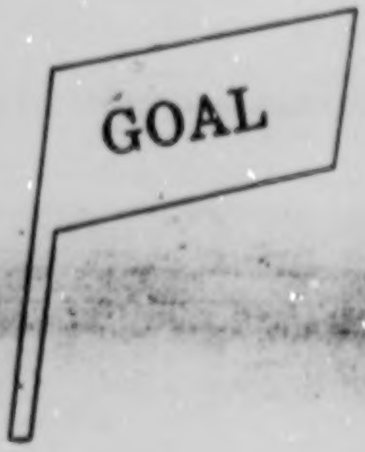



What's Going On?
What do you want?

B7-DMGA-9



B7-DMGA-9



B7-DMGA-9

✂ Cut out three cards on vertical and horizontal lines.

FIRST OFFICE PARTY

Fill out application.

Go to interview.

Ask Aunt Millie for help.

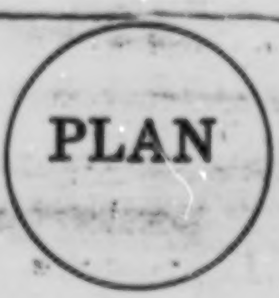
FIRST OFFICE PARTY

I want to get a summer job at the bank.

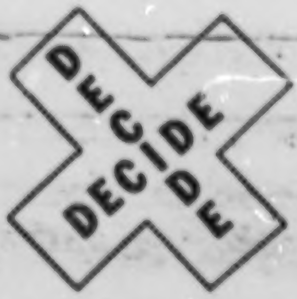
[redacted]

FIRST OFFICE PARTY

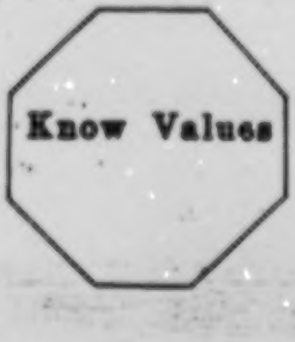
Thurman Gets the Bank Job.



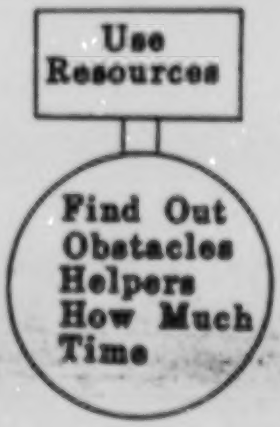
B7-DMGA-9


DECIDE
DECIDE

B7-DMGA-9


Know Values

B7-DMGA-9


Use Resources
Find Out
Obstacles
Helpers
How Much
Time

B7-DMGA-9

✂ Cut out four cards on vertical and horizontal lines.

CHECK PROGRESS

B7-DMGA-9

MODIFY GOAL
(IF NECESSARY)

B7-DMGA-9

Know Options and Outcomes

Know Options and Outcomes

B7-DMGA-9

Cut out three cards on vertical and horizontal lines.
Fold double card along broken line.

CHRIS AND THE FREE TIME FIND

I decide to write a resume

CHRIS AND THE FREE TIME FIND

Call Doris for help.

Make appointment for interview.

Read book about writing resumes.

CHRIS AND THE FREE TIME FIND

Resources:
Reading - Newspaper want ad.
Experience - Typing experience on the job, and shorthand classroom experience.
People - Betsy, Doris Kloster

Find Out:
Obstacles - Needs resume.
Helpers - Doris.
Time Needed - 3 days.

CHRIS AND THE FREE TIME FIND

I value free time, but I also value doing things the best way I know how.

CHRIS AND THE FREE TIME FIND

No need to modify goal.

CHRIS AND THE FREE TIME FIND

Think about all the progress I've made toward my goal.

CHRIS AND THE FREE TIME FIND

Options:	Outcomes:
Write a resume	Employer will be impressed, and will know more about me than if I just filled out an application.
Not write a resume	I'll have more free time.

FIRST OFFICE PARTY

No need to modify goal.

FIRST OFFICE PARTY

Call to find out if I have the job.

FIRST OFFICE PARTY

Options:	Outcomes:
I could ask Aunt Millie for a recommendation.	I'll definitely get the job, but I won't be doing it on my own.
I could prepare enough for the interview so that they're very impressed with me.	I might appear too bookish, smart, or over-eager. So I might not get the job.

FIRST OFFICE PARTY

First, I decide not to ask Aunt Millie for help.

Then, I decide to ask her for help.

FIRST OFFICE PARTY

Practice filling out applications.

Write and rehearse my interview speech in front of the mirror.

Pick what to wear to the interview.

FIRST OFFICE PARTY

Resources:
Reading - Encyclopedia of Careers.
Experience - Handling money and making change while selling hot dogs at the ball park.
People - Aunt Millie.

Find Out:
Obstacles - Competition.
Helpers - Aunt Millie.
Time Needed - 1 month.

FIRST OFFICE PARTY

I value getting the job, but I also value doing things on my own.

THE CAPE COD COMPROMISE

Drive home in a rented van with the bikes in the back.

OR

Plan a new route home and ride the bikes back.

THE CAPE COD COMPROMISE

Do routine checks on our bikes each morning to make sure they are in good working order.

Discuss the day's events.

THE CAPE COD COMPROMISE

Options:	Outcomes:
We could take a long bicycle trip.	All of us would not be able to go.
We could take a short bicycle trip.	All of us could go.

CLEMENCIA CONQUERS

I decide to join the group class.

CLEMENCIA CONQUERS

Buy a bathing suit.

Choose and sign up for a class.

CLEMENCIA CONQUERS

Resources:
Reading - Newspaper ad.
Experience - Trip from New York to Colorado alone.
People - Dr. Morris, Lori Torres.

Find Out:
Obstacles - I'm shy, and I'm afraid of deep water.
Helpers - Mom, Mori.
Time Needed - 3 months.

CLEMENCIA CONQUERS

I value independence and self confidence.

THE CAPE COD COMPROMISE

Ride the bikes.

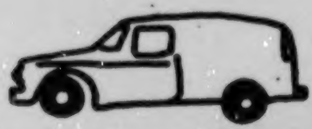
Follow plans.

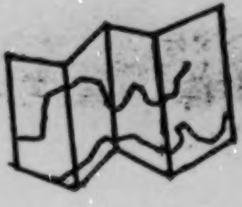
THE CAPE COD COMPROMISE

We want to go on a long bicycle trip.

THE CAPE COD COMPROMISE

Goal Modification:
Some of Us Took a Rented
Van Home





Some of us rode home a different way.

CHRIS AND THE FREE TIME FIND

Write resume.

Role-play an interview with Doris.

CHRIS AND THE FREE TIME FIND

I want to apply for a job as a court stenographer.

CHRIS AND THE FREE TIME FIND

Chris Makes an Appointment for an Interview

THE CAPE COD COMPROMISE

We decide to shorten our trip.

THE CAPE COD COMPROMISE

Plan our route.

Make plans to call home each night.

Locate campgrounds and other places to stay.

Plan what to bring and how to carry it.

THE CAPE COD COMPROMISE

Resources:
Reading - Maps, bike repair manual.
Experience - Day trips to build stamina and to get used to sitting on bicycle seat.
People - The 2 kids who went on the transcontinental trip.

Find Out:
Obstacles - Our parents don't like the idea.
Helpers - My grandmother.
Time Needed - 4-5 days.

THE CAPE COD COMPROMISE

We value going on a long bike adventure, but we also value sharing our experience.

CLEMENCIA CONQUERS

Join a free style swimming class.

CLEMENCIA CONQUERS

Check the time it takes to swim the same distance over a period of 6 weeks.

CLEMENCIA CONQUERS

Options:	Outcomes:
I could join a group class.	I'll have to get over my shyness and it will be difficult at first.
I could enroll in a private class at the YWCA.	I'll have to depend on Mom for a ride, and it will cost more money.

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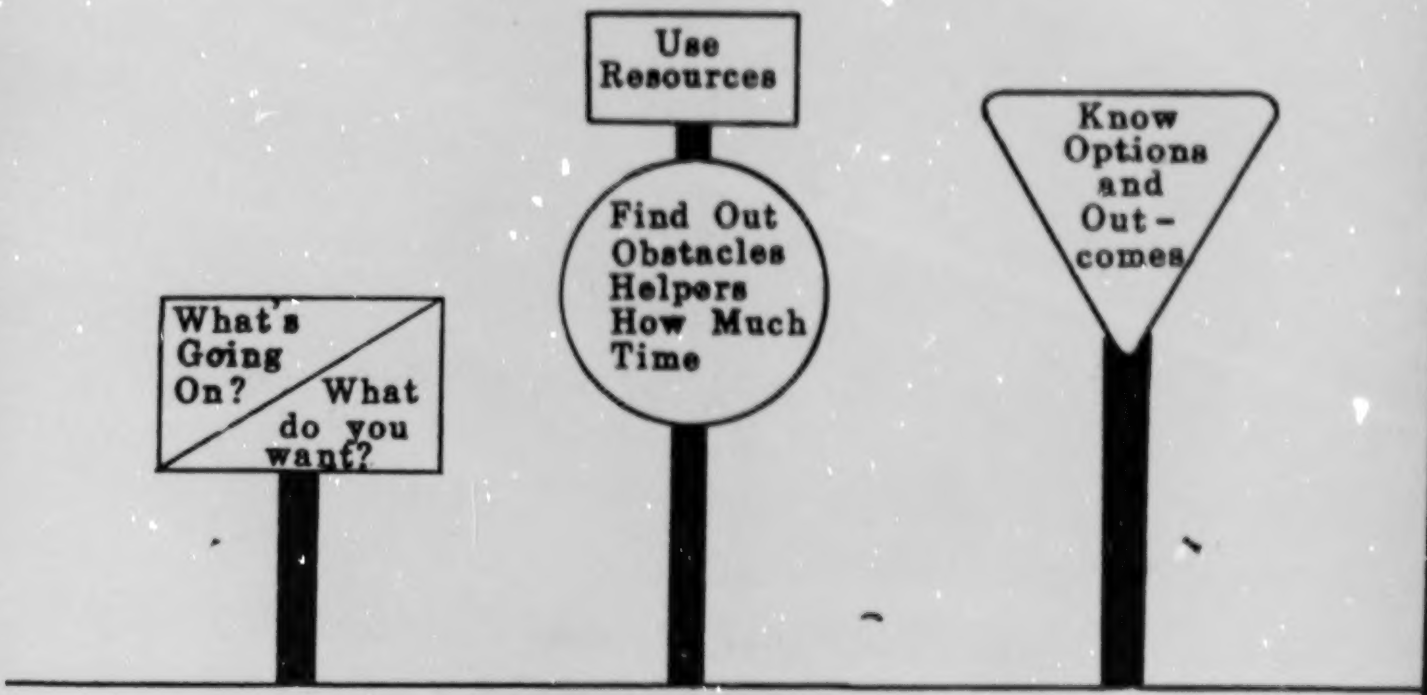
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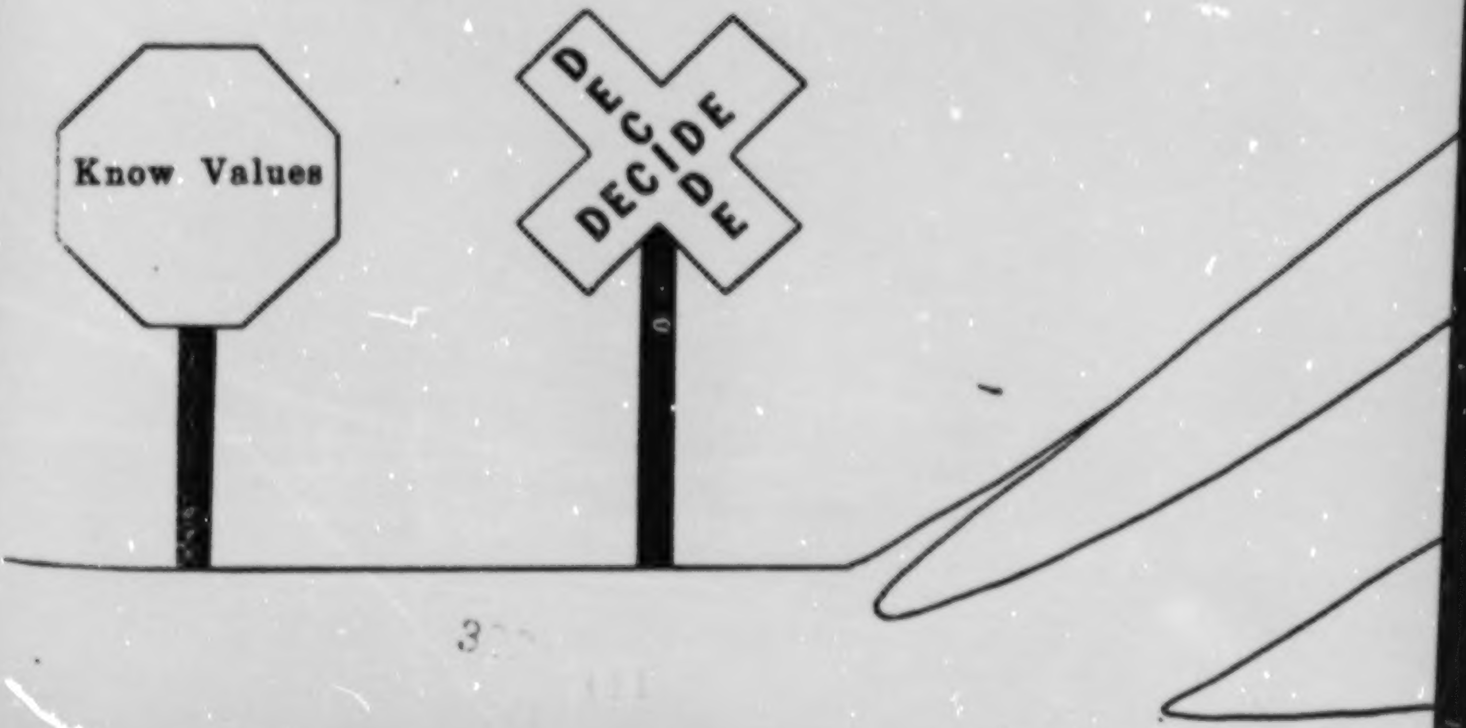

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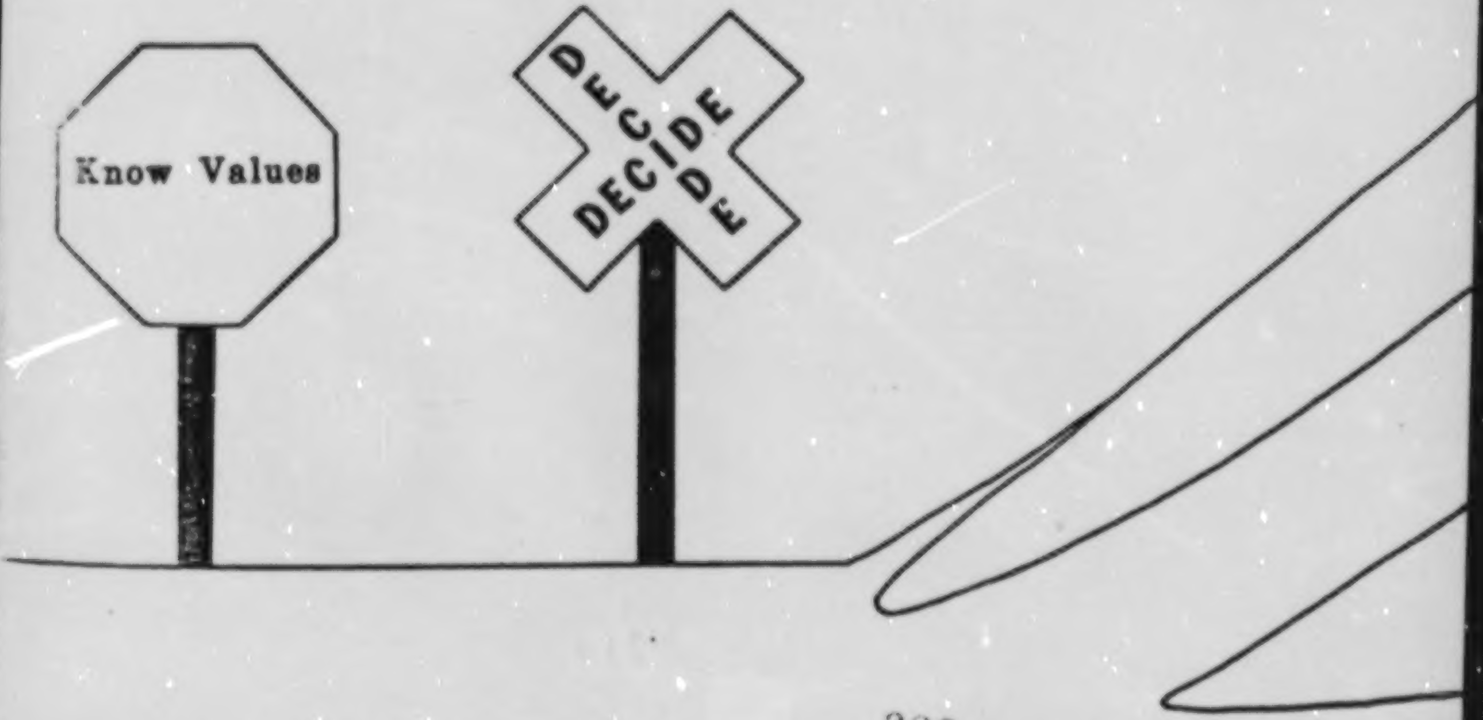

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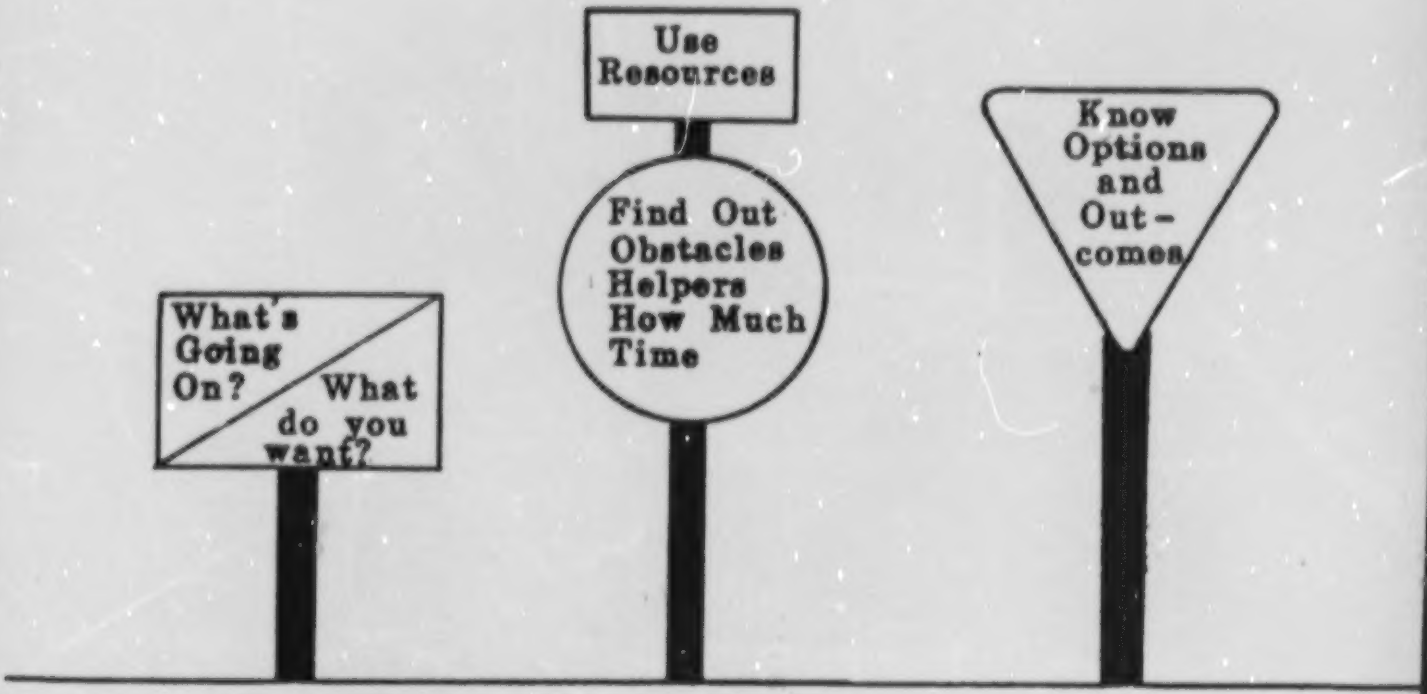
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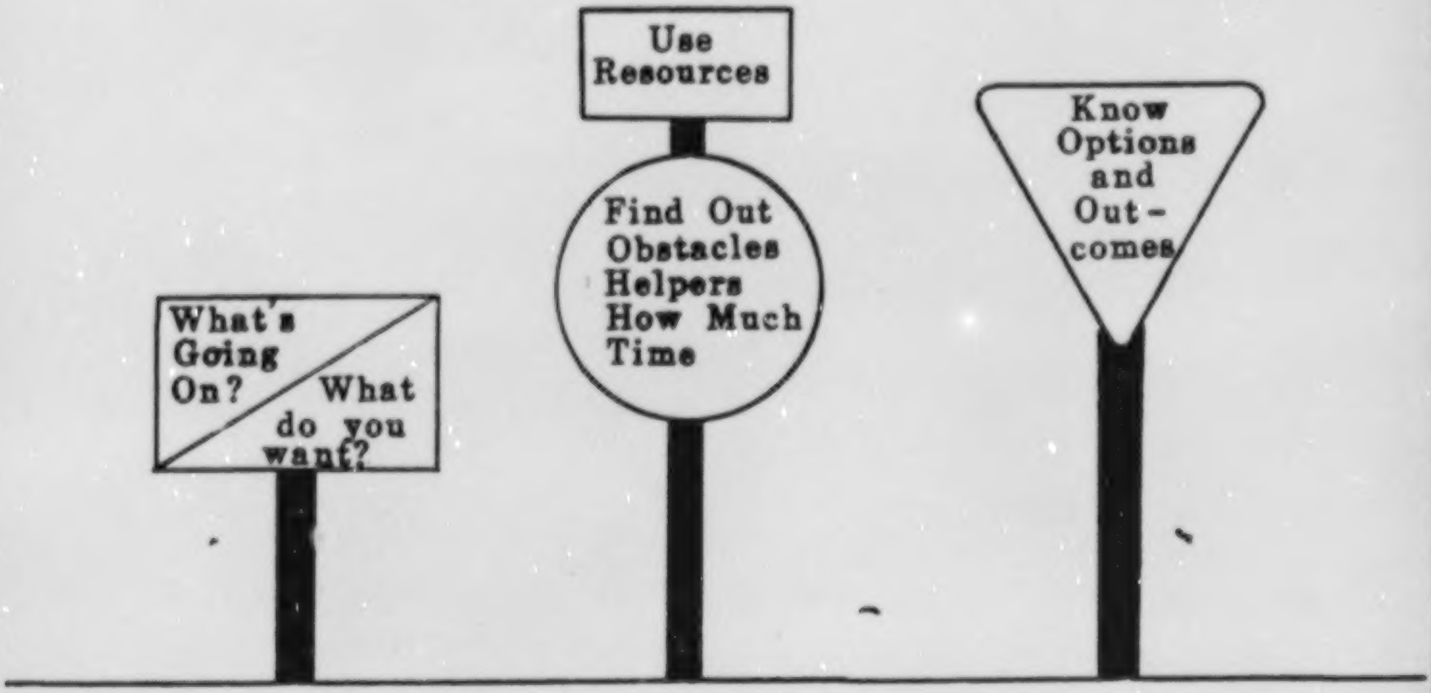
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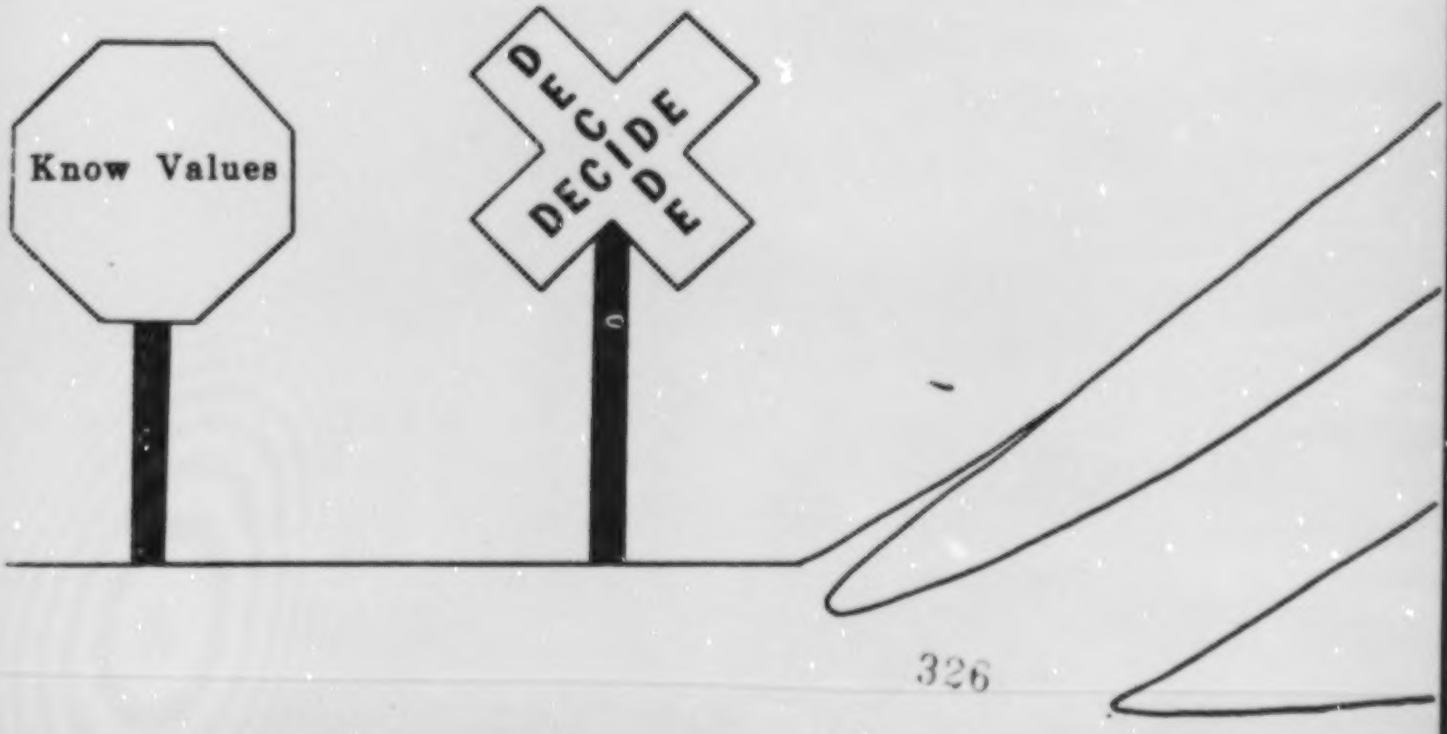
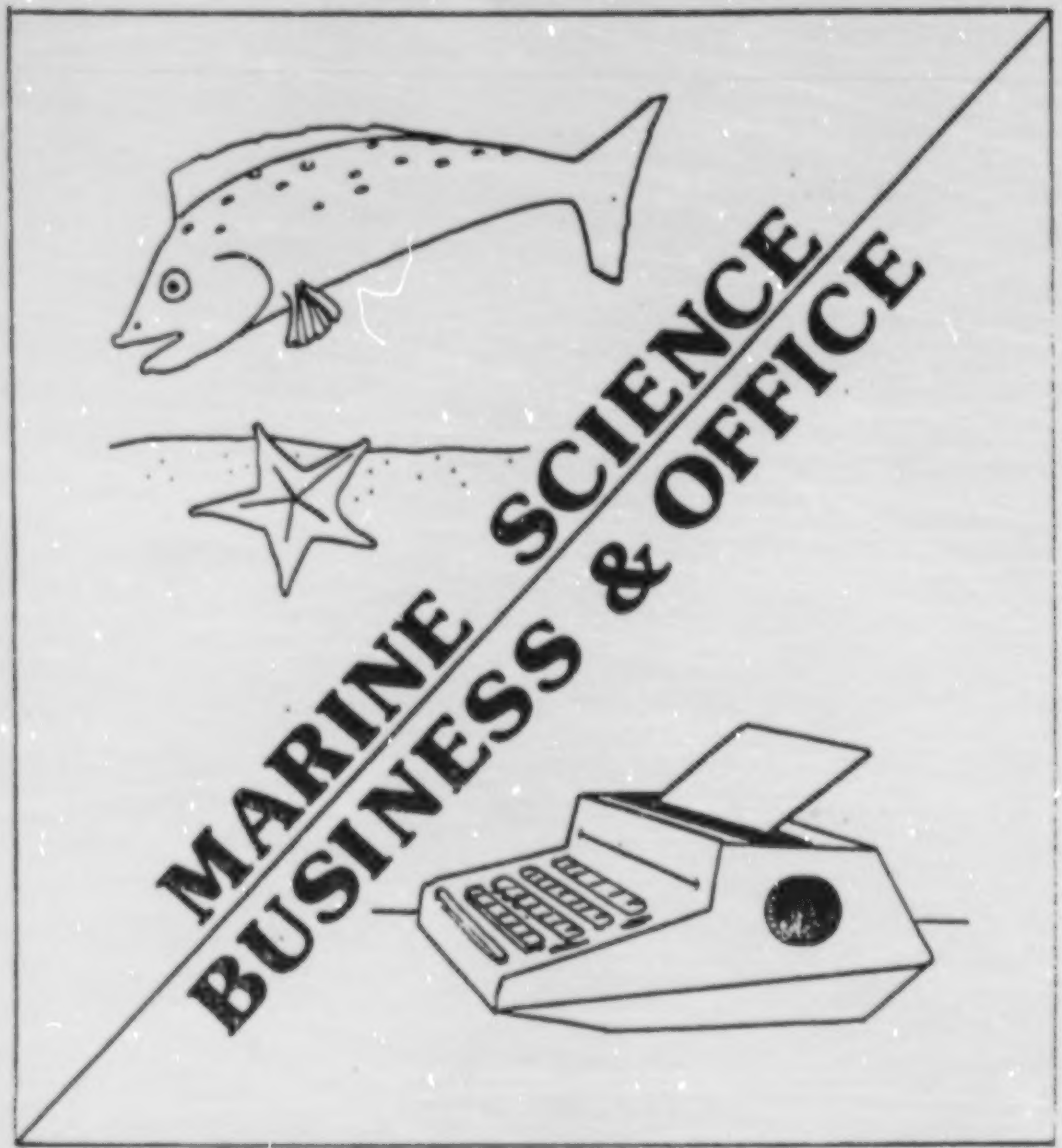


B7-J&R-1

Marine Science Concentration



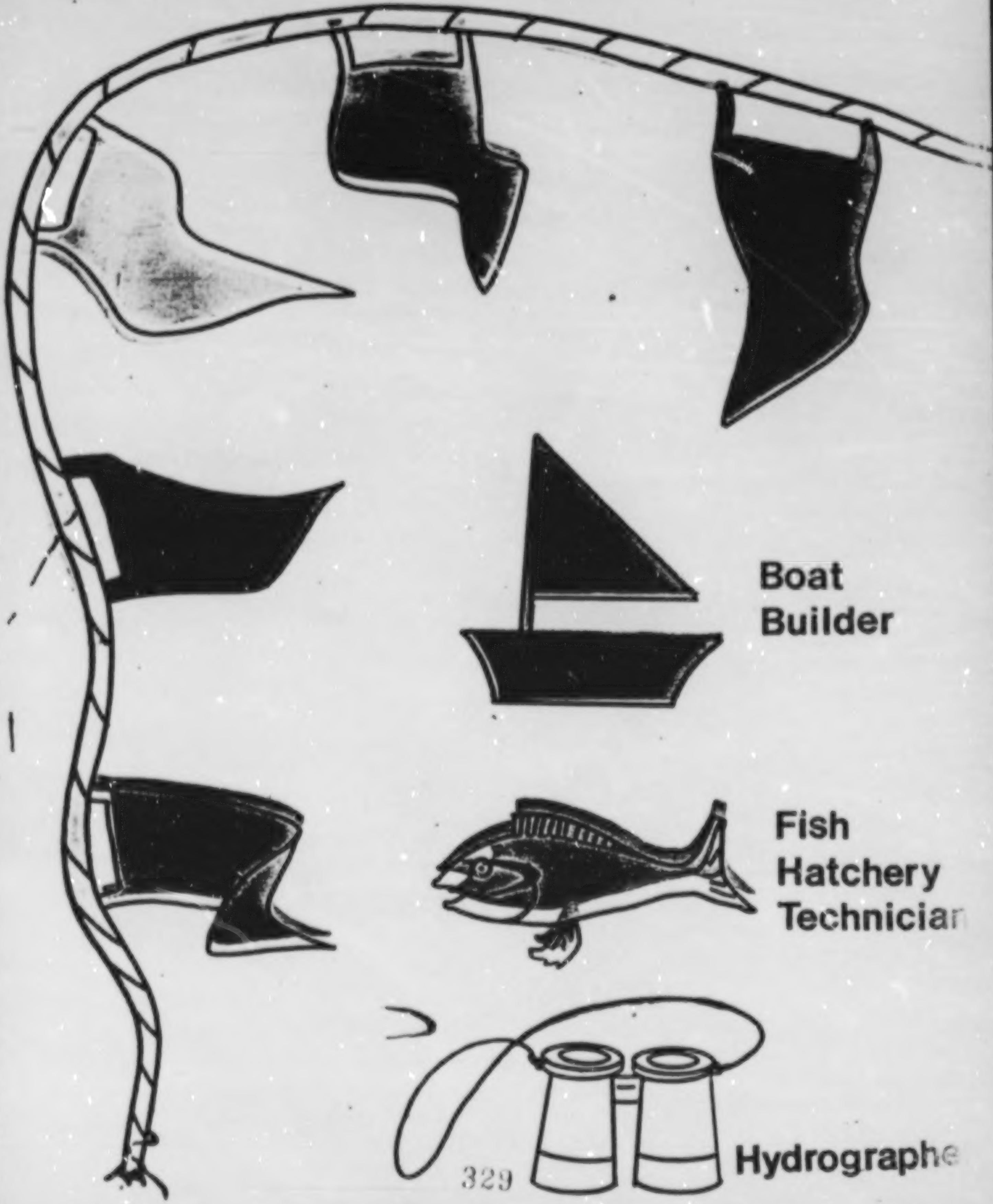
Directions:

1. Shuffle cards and spread them out facts-side-down on table.
2. Each turn, look at 4 cards.
3. If you turn over 4 cards of the same worker-suit, keep them; otherwise, put the 4 cards back as they were.
4. A variation may be played, with 2 cards making a worker-suit.

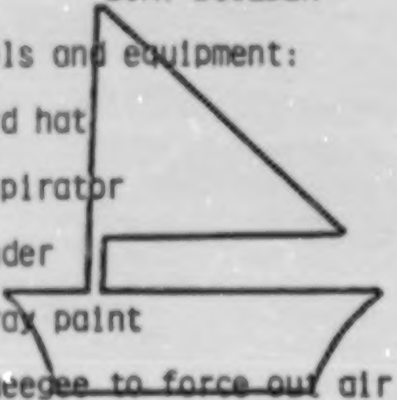
Materials:

Included:
20 Cards (5 suits)

Needed:
None


Boat
Builder
Fish
Hatchery
Technician
Hydrographe

BOAT BUILDER



Tools and equipment:

hard hat

respirator

sander

spray paint

squeegee to force out air bubbles

B7-J&R-1

FISH HATCHERY TECHNICIAN

Tools and equipment:

saw, hammer, screwdriver

scrap net

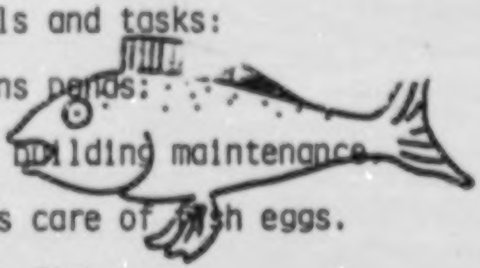
trap net

seine

screen

B7-J&R-1

FISH HATCHERY TECHNICIAN



Skills and tasks:

Cleans ponds.

Does building maintenance.

Takes care of fish eggs.

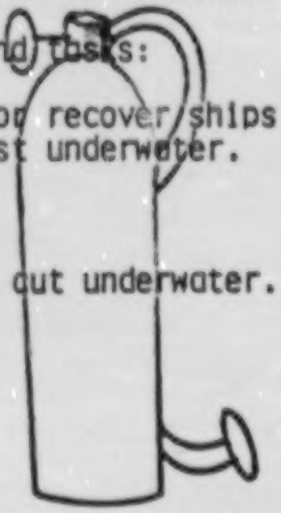
Feeds fish.

Helps fish adjust to different water conditions.

Stocks waters with fish.

B7-J&R-1

COMMERCIAL DIVER



Skills and tasks:

Salvage or recover ships and goods lost underwater.

Explore.

Weld and cut underwater.

B7-J&R-1

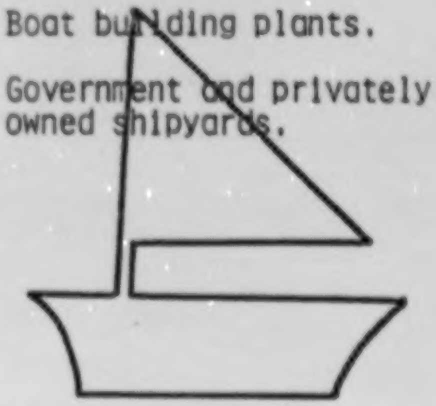
Cut out four cards on vertical and horizontal lines.

BOAT BUILDER

Work places:

Boat building plants.

Government and privately owned shipyards.



B7-J&R-1

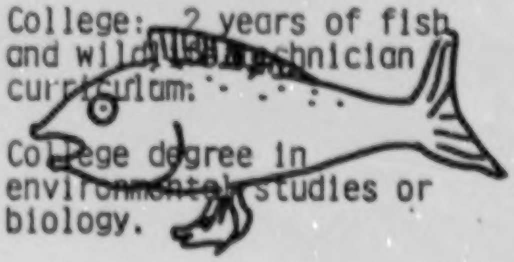
FISH HATCHERY TECHNICIAN

Training places:

High school biology, chemistry, English.

College: 2 years of fish and wildlife technician curriculum.

College degree in environmental studies or biology.



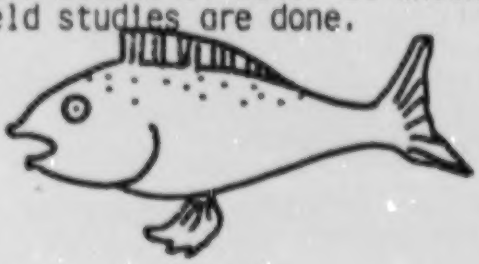
B7-J&R-1

FISH HATCHERY TECHNICIAN

Work places:

Government and private fish hatcheries.

Other bodies of water at which field studies are done.



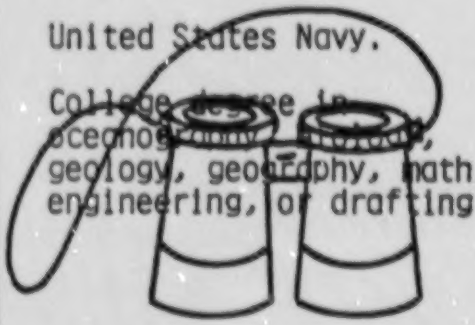
B7-J&R-1

HYDROGRAPHER

Training places:

United States Navy.

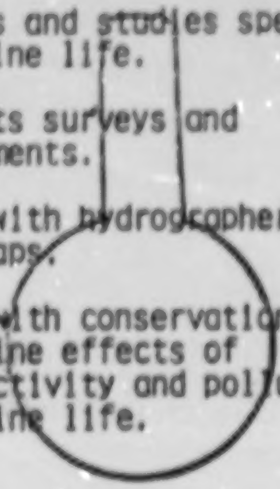
College degree in oceanography, [illegible], geology, geography, math, engineering, or drafting.



B7-J&R-1

✂ Cut out four cards on vertical and horizontal lines.

MARINE BIOLOGIST



Skills and tasks:

Gathers and studies specimens of marine life.

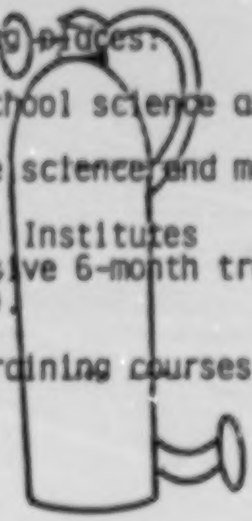
Conducts surveys and experiments.

Works with hydrographers to make maps.

Works with conservationists to determine effects of radioactivity and pollution on marine life.

B7-J&R-1

COMMERCIAL DIVER



Training places:

High school science and math.

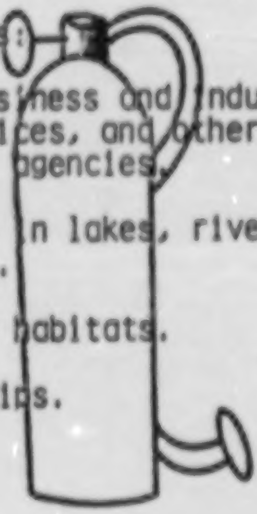
College science and math.

Divers' Institutes (intensive 6-month training course).

YMCA training courses.

B7-J&R-1

COMMERCIAL DIVER



Work places:

Private business and industry, armed services, and other government agencies.

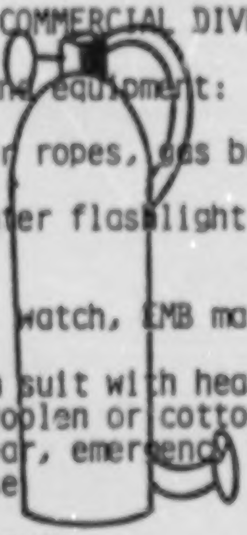
Underwater in lakes, rivers, and oceans.

Underwater habitats.

Surface ships.

B7-J&R-1

COMMERCIAL DIVER



Tools and equipment:

lines or ropes, gas bags

underwater flashlight and camera

divers' watch, EMB mask

Big Jim suit with heating unit, woolen or cotton underwear, emergency tanks, air hose

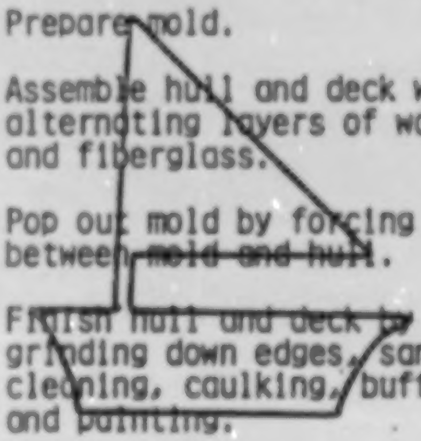
depth gauge

B7-J&R-1

Cut out four cards on vertical and horizontal lines.

BOAT BUILDER

Skills and tasks:



Prepare mold.

Assemble hull and deck with alternating layers of wood and fiberglass.

Pop out mold by forcing water between mold and hull.

Finish hull and deck by grinding down edges, sanding, cleaning, caulking, buffing and painting.

B7-J&R-1

MARINE BIOLOGIST

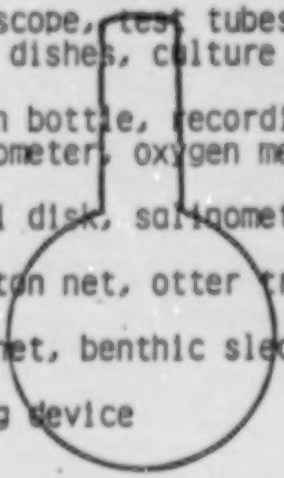
Training places:

College degree in oceanography or biology.

B7-J&R-1

MARINE BIOLOGIST

Tools and equipment:



microscope, test tubes, slides, petri dishes, culture mediums

nansen bottle, recording thermometer, oxygen meter

secchi disk, salinometer

plankton net, otter troll

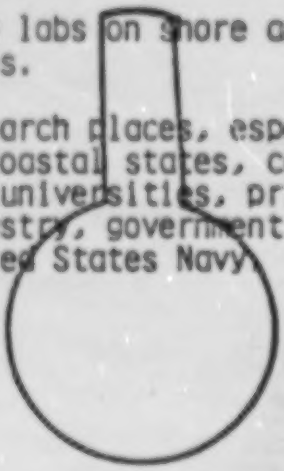
gill net, benthic sled

coring device

B7-J&R-1

MARINE BIOLOGIST

Work places:



Fish labs on shore and on ships.

Research places, especially in coastal states, colleges, and universities, private industry, government agencies, United States Navy.

B7-J&R-1

✂ Cut out four cards on vertical and horizontal lines.

HYDROGRAPHER

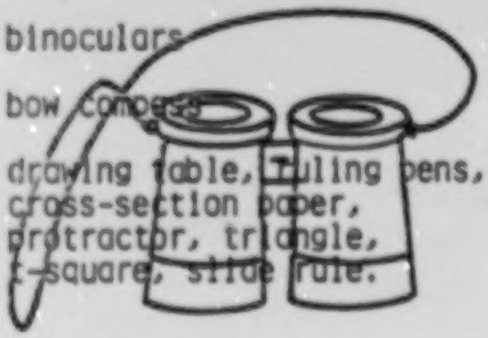
Tools and equipment:

depth recorders

binoculars

bow compass

drawing table, ruling pens, cross-section paper, protractor, triangle, t-square, slide rule.



B7-J&R-1

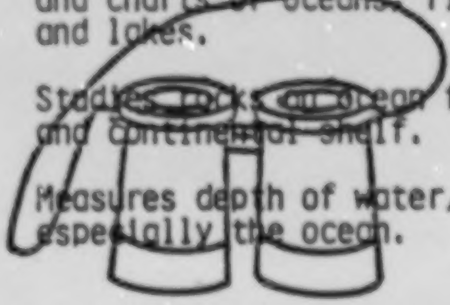
HYDROGRAPHER

Skills and tasks:

Collects data to make maps and charts of oceans, rivers and lakes.

Studies rocks on ocean floor and continental shelf.

Measures depth of water, especially the ocean.



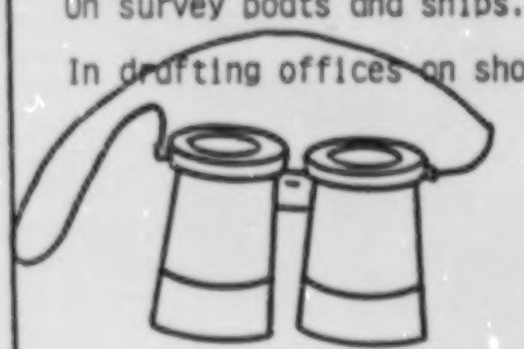
B7-J&R-1

HYDROGRAPHER

Work places:

On survey boats and ships.

In drafting offices on shore.



B7-J&R-1

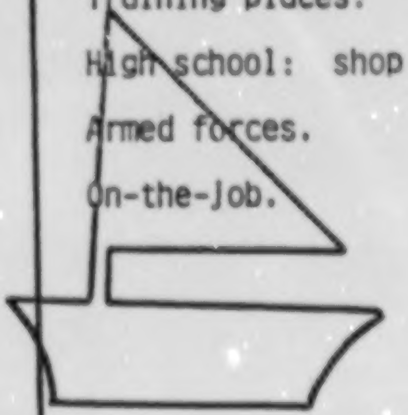
BOAT BUILDER

Training places:

High school: shop courses.

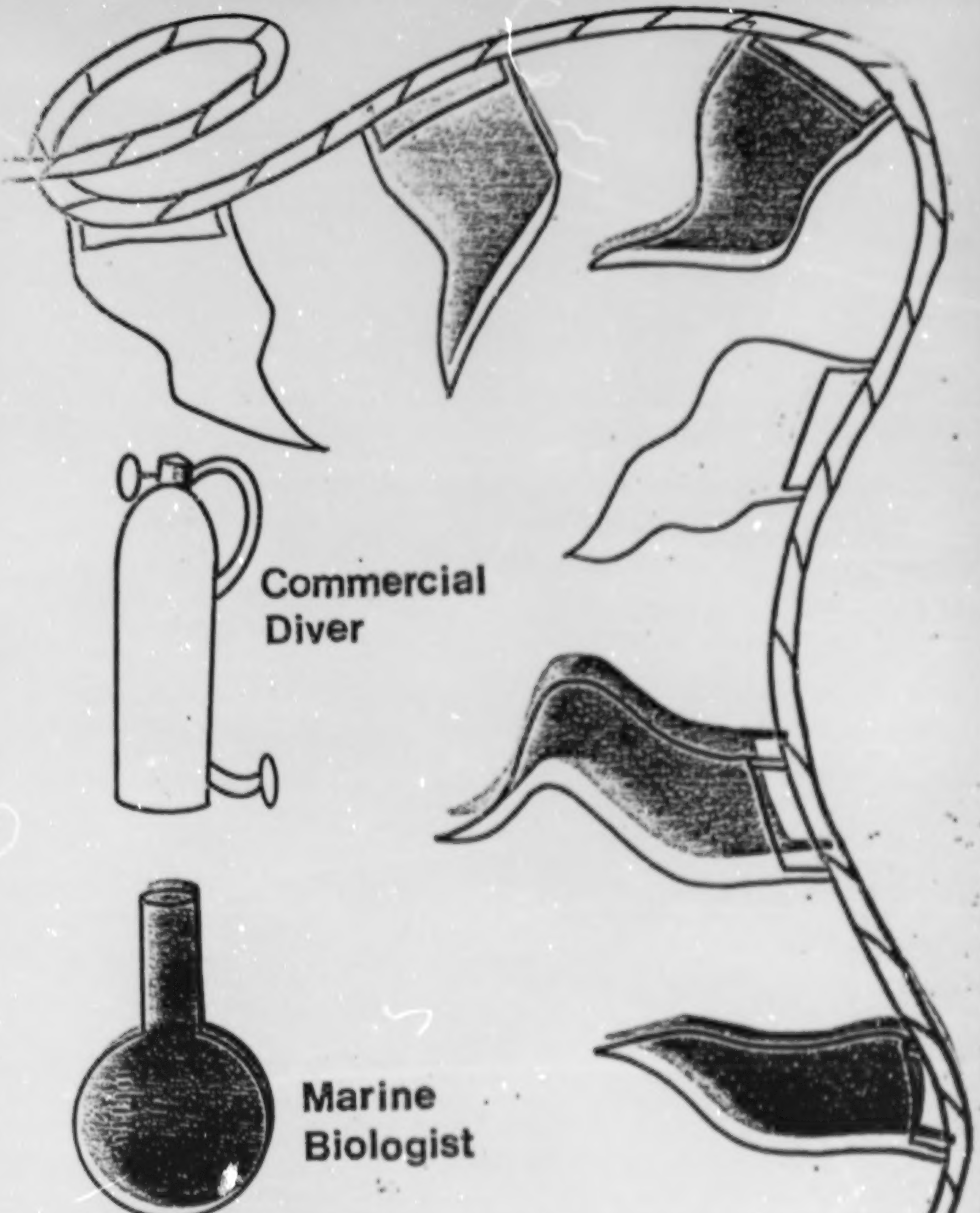
Armed forces.

On-the-job.



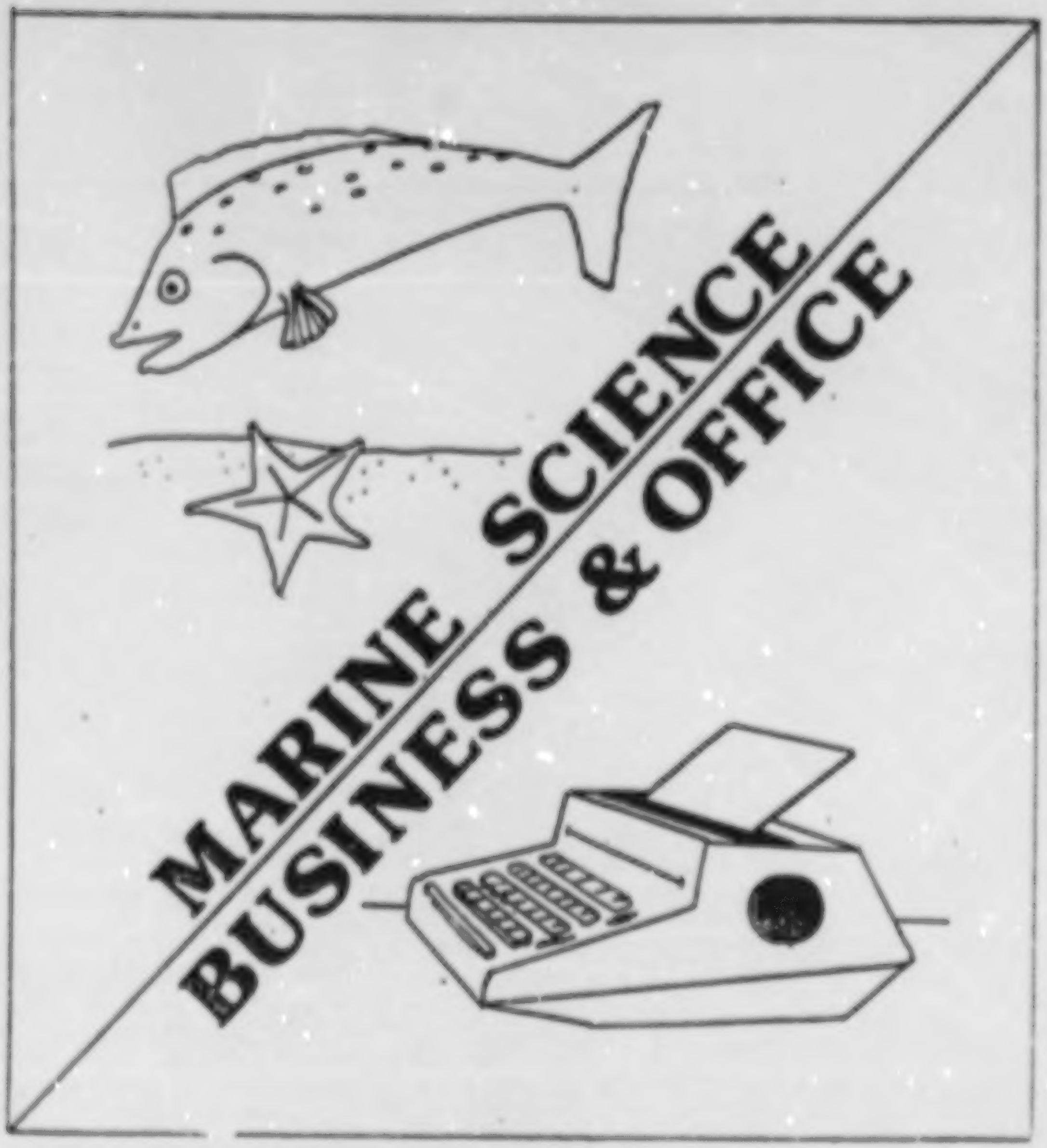
B7-J&R-1

Cut out four cards on vertical and horizontal lines.


Commercial Diver
Marine Biologist

B7-J&R-2

Lingo Bingo


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

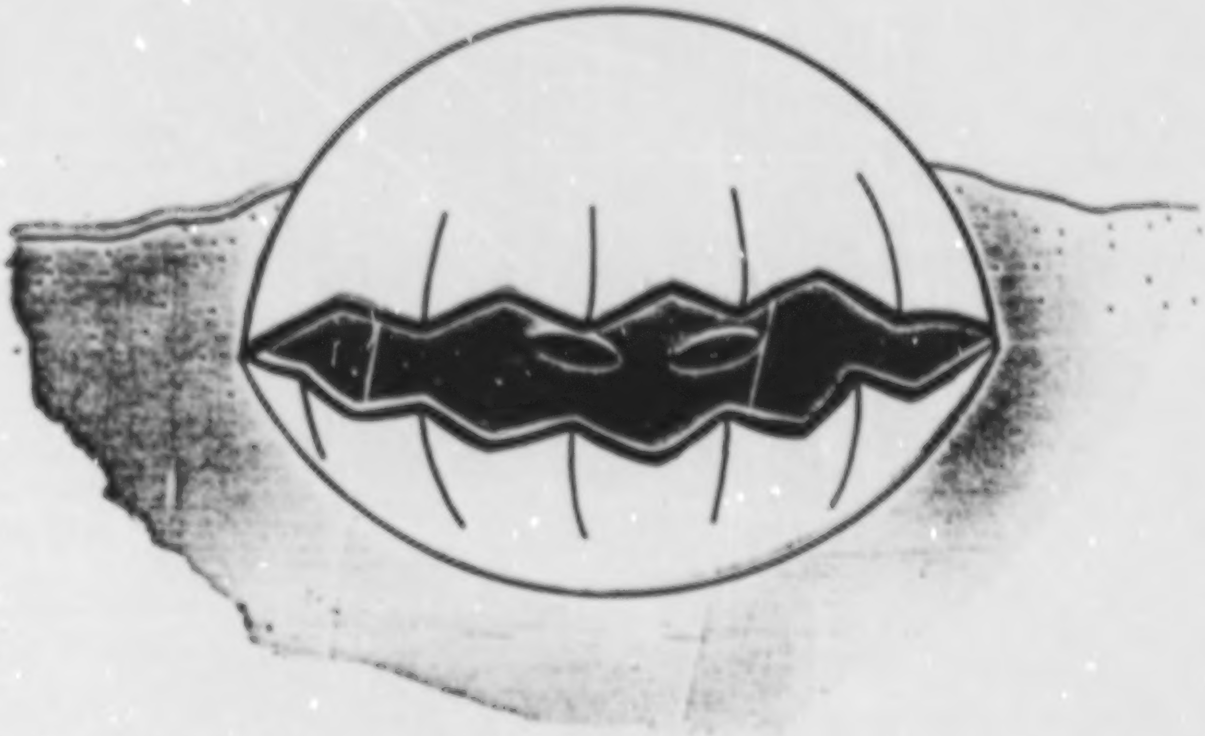
1. Read definitions on calling cards.
2. Use bingo activity.

Materials:

Included:
- 6 Bingo cards
- 30 Calling cards
- 50 Markers

Needed:
- None

LINGO BINGO



O

SECCHI DISK

A black and white disk lowered into water until it disappears. It's used to measure turbidity (or cloudiness) of water.

B7-J&R-2

O

BOW COMPASS

A pair of drawing compasses joined with a flexible band.

B7-J&R-2

G

HULL

Boat sides and bottom.

B7-J&R-2

G

MARINE

A term having to do with the ocean.

B7-J&R-2

G

BOAT BUILDER

Someone who works to construct whole boats or parts of boats.

B7-J&R-2

G

BRINE

Salt water.

B7-J&R-2

✂ Cut out six cards on vertical and horizontal lines.

B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2

Cut out twenty-five cards along vertical and horizontal lines.

& cut out card on dotted line

LINGO

plankton	specimen	brood	hull	league
organism	nautical	spawn	scuba	seine
algae	knot	free	Boat Builder	Marine Biologist
Fish Hatchery Technician	trough	Commercial Diver	deck	bow compass
roe	fathom	coral	marine	troll

8x cut out card on dotted line

LINGO

crustacean	knot	habitat	scuba	Marine Biologist
plankton	fathom	coral	hull	troll
Fish Hatchery Technician	trough	free	deck	Secchi disk
roe	nautical	brood	brine	seine
organism	Hydrographer	Nansen bottle	Boat Builder	league

B7-J&R-2

N NANSEN BOTTLE Marine scientist's collection tool used to trap water at various depths. B7-J&R-2	I HYDROGRAPHER Someone who studies the ocean bottom and measures the depth of water in order to chart and make maps of the ocean floor. B7-J&R-2
I KNOT A nautical mile B7-J&R-2	I FATHOM A measurement of length and depth, about 6 feet. B7-J&R-2
I NAUTICAL A term having to do with sailors, ships, or navigation. B7-J&R-2	L ROE Fish eggs. B7-J&R-2

Cut out six cards on vertical and horizontal lines.

8x cut out card on dotted line

LINGO

crustacean	trough	spawn	Boat Builder	seine
algae	fathom	brood	marine	Secchi disk
organism	nautical	free	scuba	league
plankton	Hydrographer	Nansen bottle	hull	troll
Fish Hatchery Technician	specimen	Commercial Diver	brine	bow compass

B7-J&R-2

O

SEINE

A long net pulled behind a boat used to crowd fish together.

B7-J&R-2

O

MARINE BIOLOGIST

Someone who gathers and studies marine specimens and conducts experiments to find out more about marine life.

B7-J&R-2

O

LEAGUE

Three knots.

B7-J&R-2

N

HABITAT

Underwater living and work place used by divers and scientists who want to remain underwater for long periods of time.

B7-J&R-2

O

TROLL

To fish with a moving line or net (usually pulled behind a moving boat).

B7-J&R-2

G

DECK

Boat floor.

B7-J&R-2

✂ Cut out ~~six~~ cards on vertical and horizontal lines.

8x cut out card on dotted line

LINGO

Fish Hatchery Technician	specimen	Nansen bottle	deck	league
roe	knot	brood	marine	bow compass
crustacean	Hydrographer	free	brine	troll
organism	fathom	coral	Boat Builder	Marine Biologist
algae	nautical	habitat	hull	Secchi disk

I

TROUGH

Long, narrow open container used for holding water or food.

B7-J&R-2

L

CRUSTACEAN

Sea animal with jointed limbs and hard skeleton. Lobsters and shrimp are examples.

B7-J&R-2

L

ORGANISM

Living thing.

B7-J&R-2

L

FISH HATCHERY TECHNICIAN

Someone who raises and takes care of fish at a commercial or government run hatchery.

B7-J&R-2

L

ALGAE

Rootless, stemless plants that live in water. Seaweed and pond scum are 2 examples.

B7-J&R-2

L

PLANKTON

Microscopic plant and animal life that lives in water. Diatoms and protozoa are 2 examples.

B7-J&R-2

✂ Cut out six cards on vertical and horizontal [illegible] cut out card on dotted line

LINGO

algae	nautical	coral	deck	bow compass
crustacean	Hydrographer	Commercial Diver	brine	Marine Biologist
plankton	specimen	free	hull	seine
roe	knot	habitat	marine	league
organism	trough	spawn	scuba	Secchi disk

B7-J&R-2

✂ cut out card on dotted line

LINGO

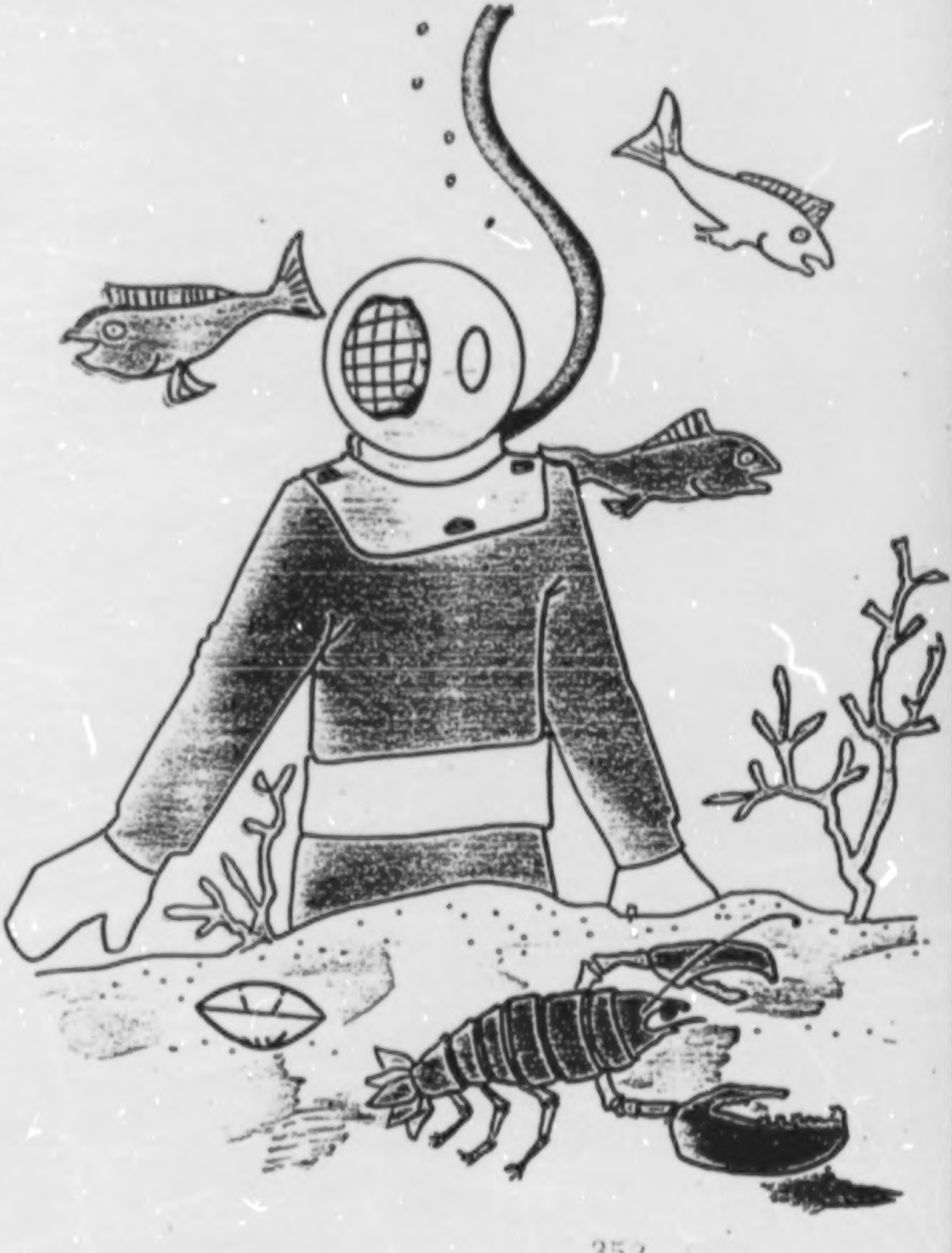
algae	Hydrographer	Commercial Diver	brine	troll
Fish Hatchery Technician	trough	habitat	Boat Builder	Secchi disk
roe	fathom	free	marine	bow compass
plankton	knot	Nansen bottle	scuba	Marine Biologist
crustacean	specimen	spawn	deck	seine

B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2
B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2	B7-J&R-2

Cut out twenty-five cards along vertical and horizontal lines.

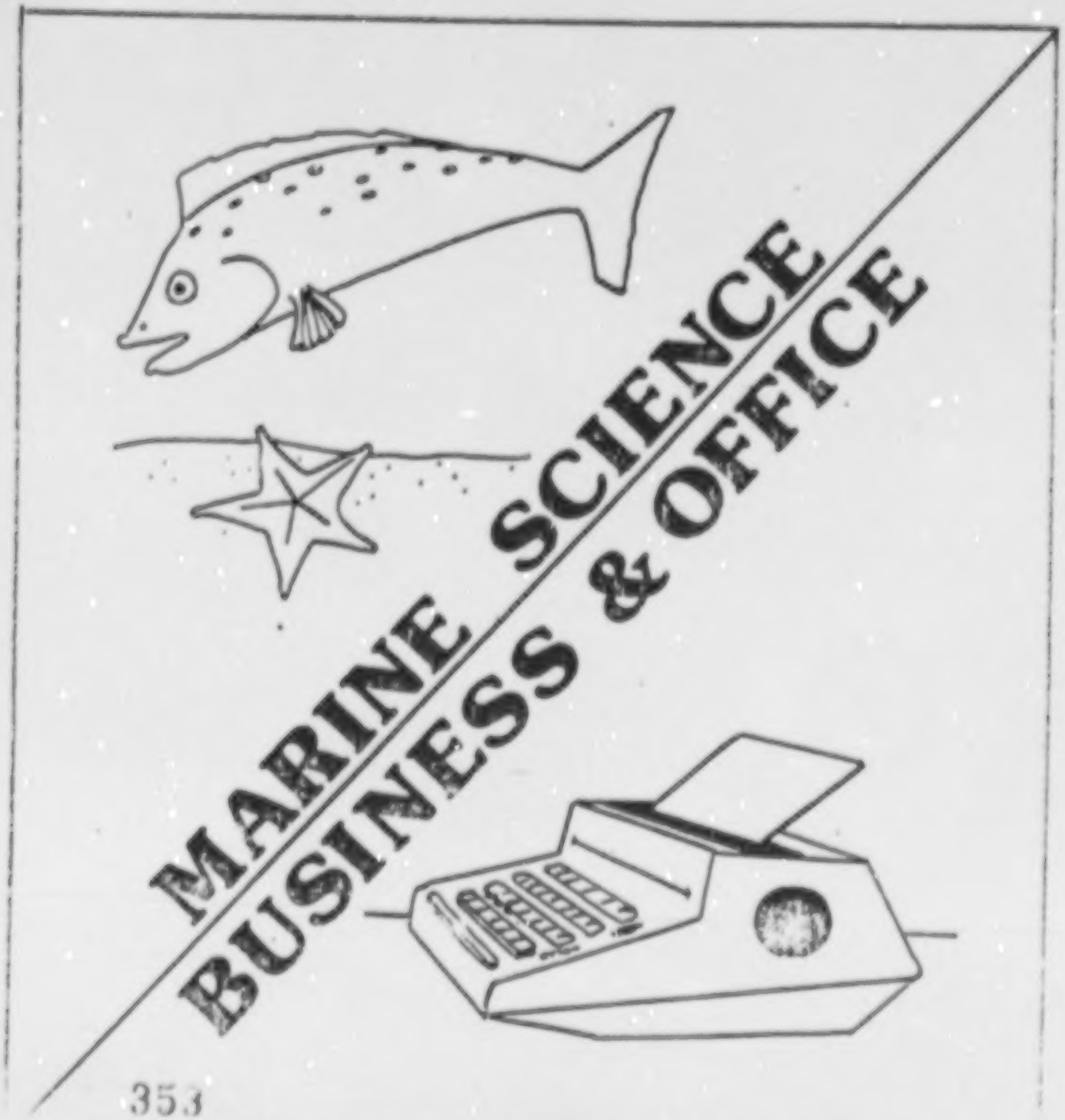
N CORAL The hard stony skeleton produced by some small sea animals (sometimes valued as jewelry). B7-J&R-2	G SCUBA Self contained underwater breathing apparatus. B7-J&R-2
N BROOD Young, offspring. B7-J&R-2	N SPAWN To produce or deposit eggs (verb); eggs or young produced by sea animals (noun). B7-J&R-2
N COMMERCIAL DIVER Someone who explores under water to salvage ships or to search for missing persons. B7-J&R-2	I SPECIMEN A sample taken for study. B7-J&R-2

✂ Cut out six cards on vertical and horizontal lines.



B7-J&R-3

Get the Facts


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

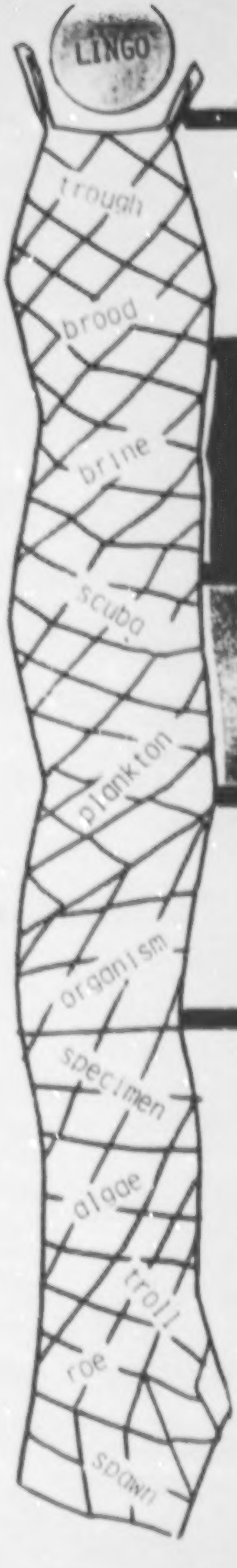
1. Read both sides of all the cards.
2. Shuffle the cards.
3. Without looking at the job title on the backs of the cards, try to match the card facts with workers on the game board.

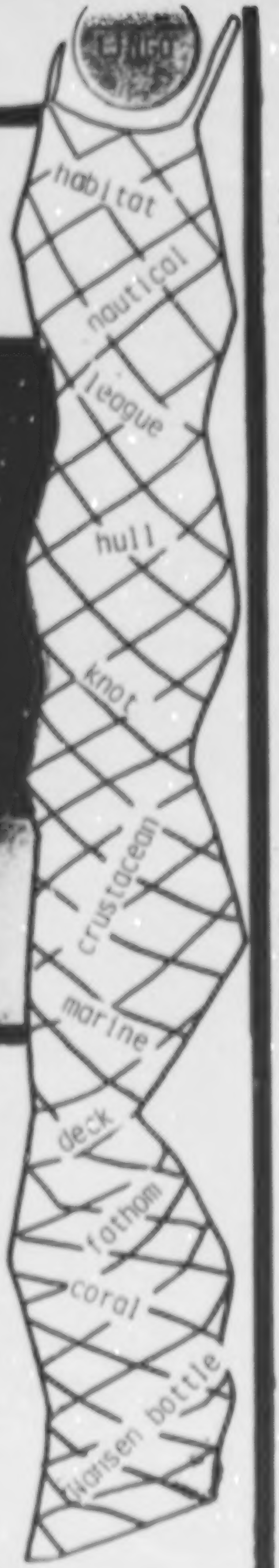
Materials:

Included:
Game board
20 Fact cards

Needed:
None

TOOLS AND EQUIPMENT	TOOLS AND EQUIPMENT
TRAINING NEEDED	TRAINING NEEDED
 BOAT BUILDER	 COMMERCIAL DIVER


LINGO
trough
brood
brine
scuba
plankton
organism
specimen
algae
troll
roe
spawn


LINGO
habitat
nautical
league
hull
knot
crustacean
marine
deck
fathom
coral
Nansen bottle

TOOLS AND EQUIPMENT

[illegible]

TRAINING NEEDED

FISH HATCHERY TECHNICIAN

BOAT BUILDER

B7-J&R-3

MARINE BIOLOGIST

B7-J&R-3

HYDROGRAPHER

B7-J&R-3

MARINE BIOLOGIST

B7-J&R-3

SKILLS AND TASKS

Maintains indoor and outdoor ponds, waterways (human-made, trough-like living and breeding places for fish), grounds, and equipment. Feeds fish (up to 12 times a day). Treats fish eggs for disease and removes dead fish eggs from ponds. Raises and spawns brood fish, and helps them adjust to different water conditions. Helps conservationists and biologists by gathering field data, sampling commercial landings of fish, keeping accurate records of findings, and improving conditions in streams and other natural waterways.

SKILLS AND TASKS

Prepares mold (spreads and scrapes off excess wax; buffs and polishes mold). Puts together "plugs" (large pieces of shaped wood that form the hull and deck of boat). Covers with wet fiberglass cloth or mat. "Lays in" pieces of wood to strengthen structure. Adds more fiberglass and hardening chemicals. Squeezes out bubbles after each layer of fiberblass is applied. Patches damaged fiberglass by sanding, filling with caulking, or gel-coat, buffing, and painting.

SKILLS AND TASKS

Explores under water. Uses cutting and drilling techniques to assemble, inspect, and repair underwater drill riggings and pipes. Salvages or recovers ships and goods under water. Searches for missing persons.

TRAINING NEEDED

Vocational school courses where plastics, wood, and fiberglass are used are most helpful for small boat builders. Vocational school, college, armed forces, and on-the-job training in carpentry, welding, plumbing, electronics, or architecture are most useful for shipyard workers.

✂ Cut out four cards on vertical and horizontal lines.

HYDROGRAPHER

B7-J&R-3

FISH HATCHERY TECHNICIAN

B7-J&R-3

COMMERCIAL DIVER

B7-J&R-3

FISH HATCHERY TECHNICIAN

B7-J&R-3

WORK PLACES

Laboratories aboard survey and research ships. Habitats. Research facilities and labs at colleges and universities, private industry, government agencies. Naval bases and research facilities.

WORK PLACES

Boat building plants, government and privately owned shipyards.

SKILLS AND TASKS

Gathers and studies specimens of marine life. Conducts surveys and experiments to collect data about ocean movement, life, mineral and ore deposits, and floor contour. Works with hydrographers to make maps, charts, graphs, and special representations of the ocean and ocean floor. Works with conservationists to determine effects of radioactivity and pollution on marine life. Works with pharmaceutical companies to find ways to extract drugs from marine plants and animals.

SKILLS AND TASKS

Uses tools to measure depth of bodies of water, especially ocean. Studies rock formations on ocean floor and continental shelf. Compiles data for maps and charts which describe the bottoms of oceans, rivers, and lakes. Constructs these maps. Helps industrial scientists and others to locate underwater minerals, mountains, and other geological features. Helps navigators to avoid shallow places.

Cut out four cards on vertical and horizontal lines.

TOOLS AND EQUIPMENT

Hard hat, gloves, respirator, sander, spray paint, squeegee (to force out air bubbles), fiberblass mat, scissors, rollers, chemical spray canisters and nozzles, paint brushes, razor bludes, caulking gun, buffer. Shipyard workers use the specialized tools of their own construction trade.

TOOLS AND EQUIPMENT

Depth recorders such as weighted plumb lines and more sophisticated sonographs (standard on large boats), binoculars, coring device (takes samples of the floor of a body of water), drawing and light tables, ruling pens (for drawing straight lines), cross section paper (a type of graph paper), protractor, triangle, t-square, slide rule, bow compass (a pair of drawing compasses joined with a flexible band).

TOOLS AND EQUIPMENT

Microscope, test tubes, petri dishes, culture mediums, Nansen bottle, oxygen meter, Secchi disk (a black and white disk lowered into water until it disappears, used to measure turbidity or cloudiness of water), salinometer (measures salt content of water), plankton net, otter troll (open mouth fish net), benthic sled (a skimmer that picks up ocean life along the benthos, or ocean floor), recording thermometer (gives constant temperature readings at different depths), coring device.

TOOLS AND EQUIPMENT

Lines or ropes, gas bags (to keep equipment or findings afloat), underwater flashlight and camera, diver's watch, air hose, depth gauge, emergency air tanks, diving suit (flexible at joints, with atmospheric pressure kept constant with surface pressure), heating unit for suit, EMB mask (like enclosed football helmet), insulating underwear.

✂ Cut out four cards on vertical and horizontal lines.

HYDROGRAPHER

B7-J&R-3

BOAT BUILDER

B7-J&R-3

COMMERCIAL DIVER

B7-J&R-3

MARINE BIOLOGIST

B7-J&R-3

TOOLS AND EQUIPMENT

Screens (to keep fish from entering other bonds or waterways), screen-cleaning brushes, slurp gun (suction tool used to capture small fish for study), long handled hoop net, seine (a long net pulled behind a boat to crowd fish together), trap net (box-shaped fish trap), grounds maintenance materials such as shovels, hammers, screwdrivers, saws.

WORK PLACES

In offices and on decks of survey boats and shops. In on-shore drafting offices.

WORK PLACES

Government and privately owned fish hatcheries. Various other bodies of water where field studies useful to biologists and conservationists may be done.

WORK PLACES

Under water in the dark in lakes, rivers, and oceans. In underwater habitats. On surface ships for private business and industry, armed forces, and other government agencies.

✂ Cut out Four cards on vertical and horizontal lines.

BOAT BUILDER

87-J&R-3

FISH HATCHERY TECHNICIAN

87-J&R-3

BOAT BUILDER

87-J&R-3

COMMERCIAL DIVER

87-J&R-3

TRAINING NEEDED

College degree (B.S.) in oceanography, biology, geology, geography, engineering, drafting or math. Naval training and experience.

TRAINING NEEDED

High school biology, chemistry, and English courses. Laboratory experience. Two years (fish and wildlife technician program) college study. Four year B.S. degree in biology or environmental studies.

TRAINING NEEDED

YMCA courses in scuba diving. Divers Institutes (intensive 6-month training program). High school and college courses in science and mechanics are helpful.

TRAINING NEEDED

College degree (B.S.) in oceanography or biology. Graduate work leads to best positions in a chosen field.

Cut out four cards on vertical and horizontal lines.

FISH HATCHERY TECHNICIAN

B7-J&R-3

HYDROGRAPHER

B7-J&R-3

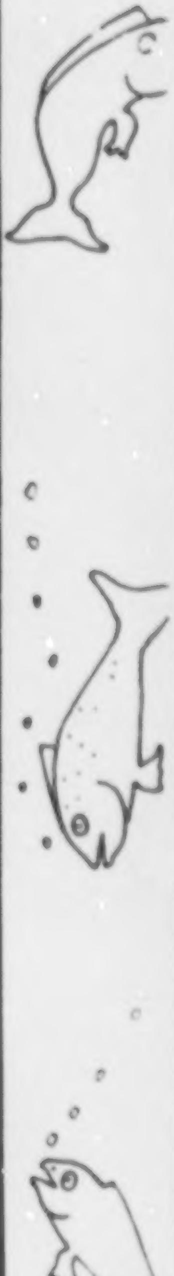
MARINE BIOLOGIST

B7-J&R-3

COMMERCIAL DIVER

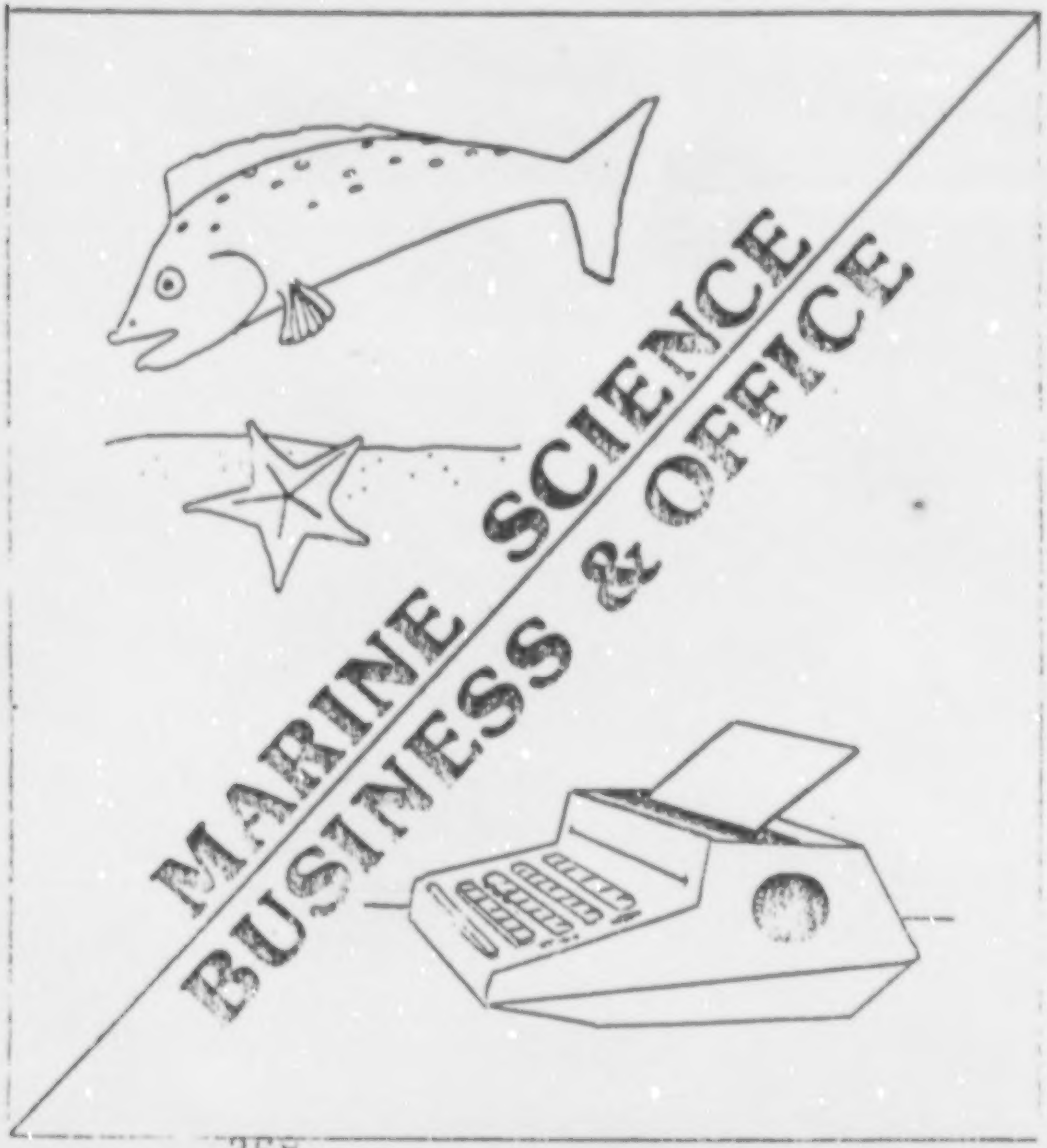
B7-J&R-3

TOOLS AND EQUIPMENT	TOOLS AND EQUIPMENT
[illegible]	[illegible]
TRAINING NEEDED	TRAINING NEEDED
HYDROGRAPHER	MARINE BIOLOGIST



B7-J&R-4

Business and Office Blaze


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the comic book.

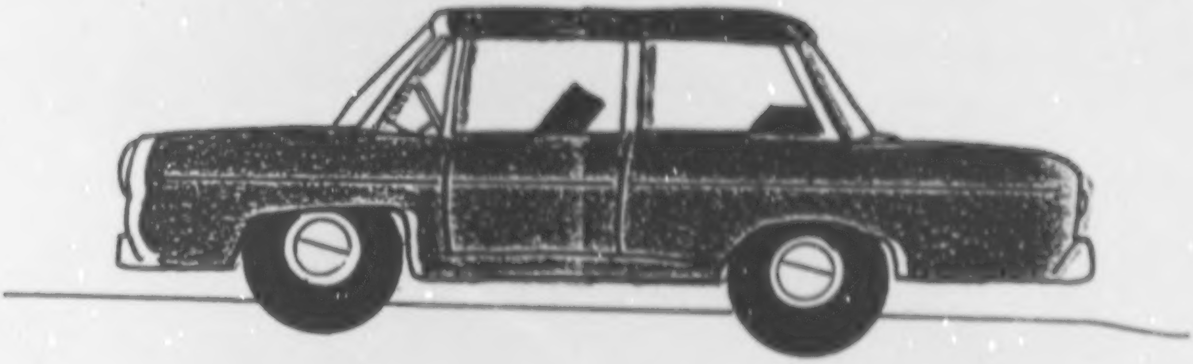
Materials:

Included:
Comic book

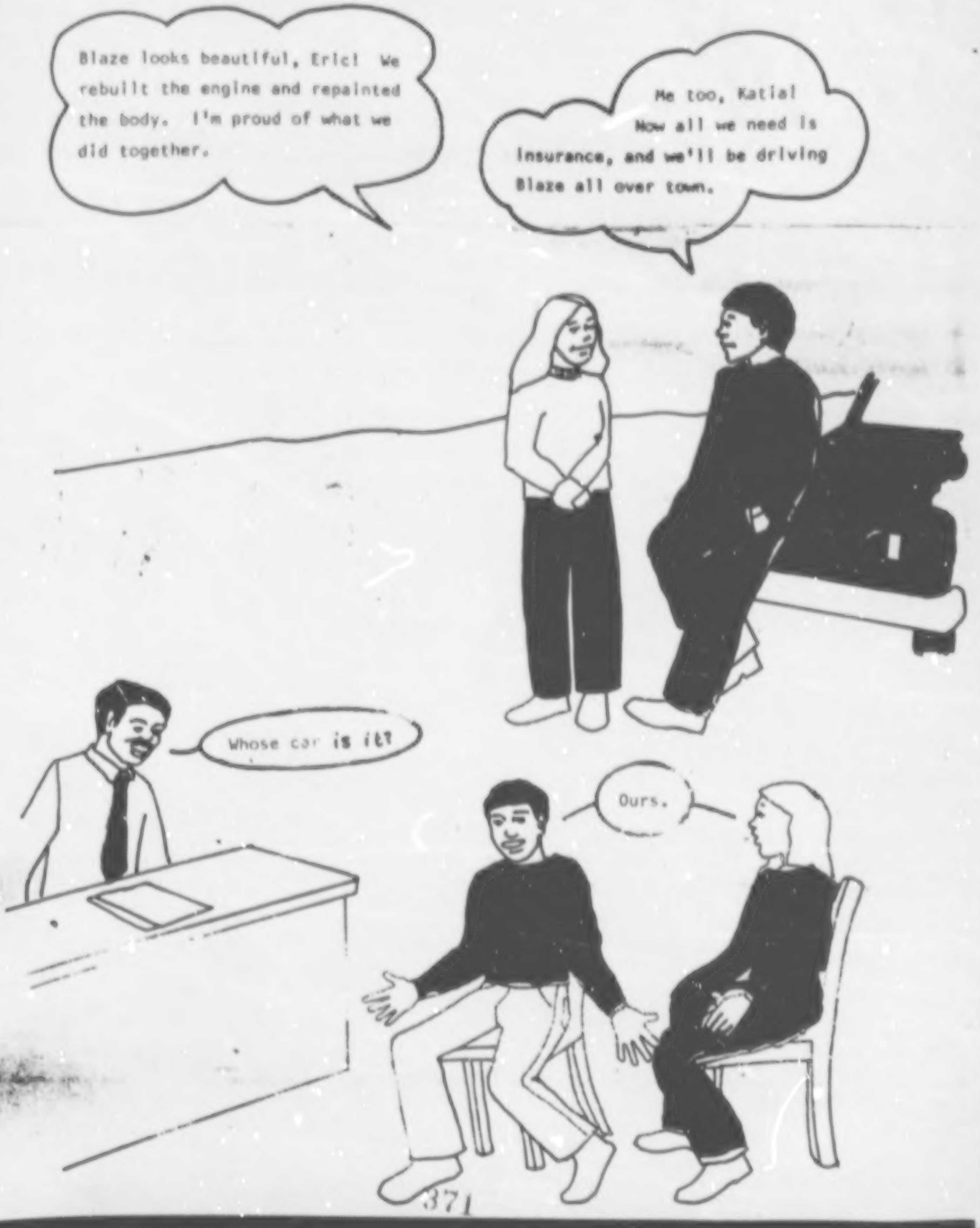
Needed:
None

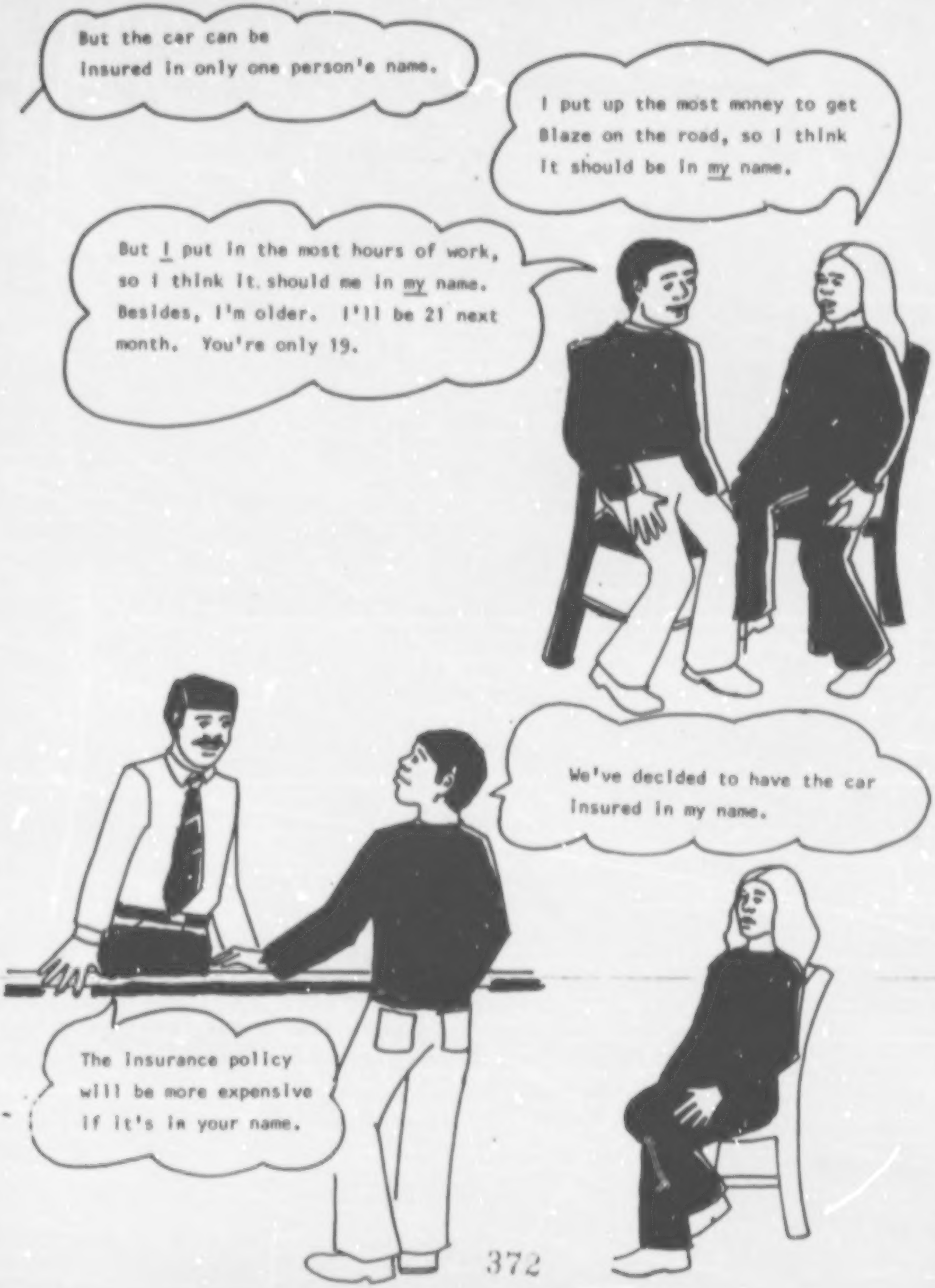
Business and Office Blaze
another comic book caper

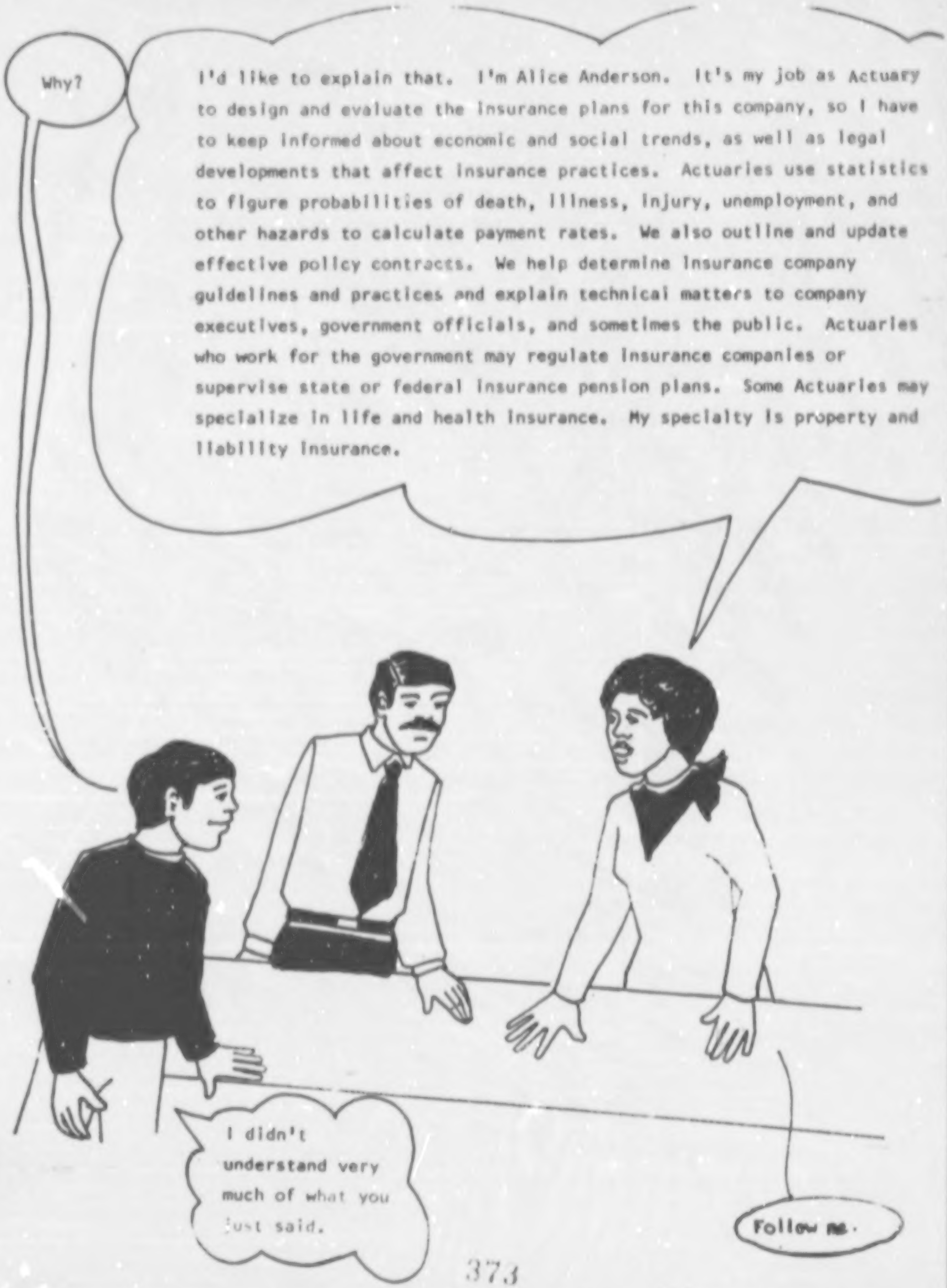
Story by
Connie Gans

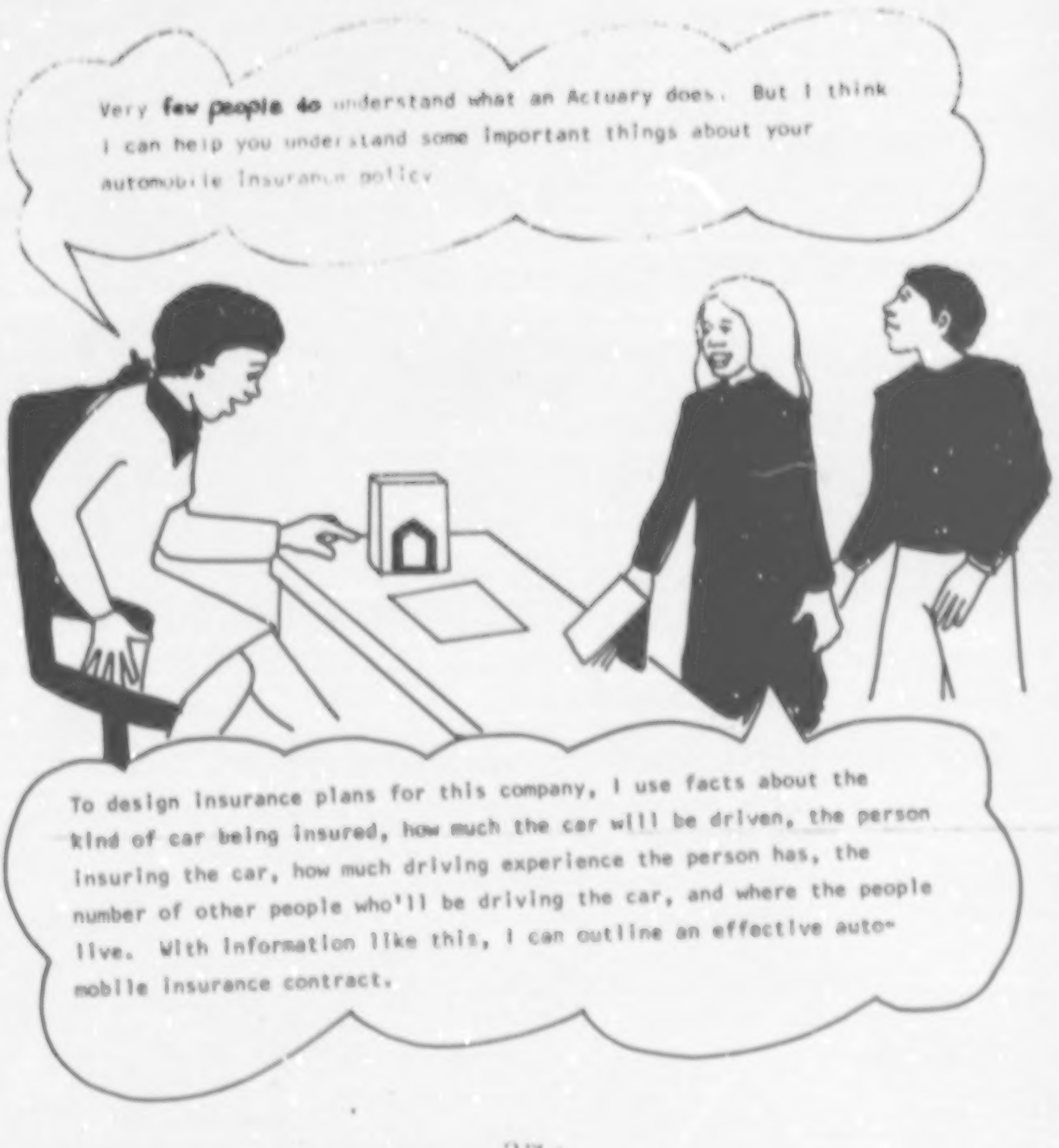


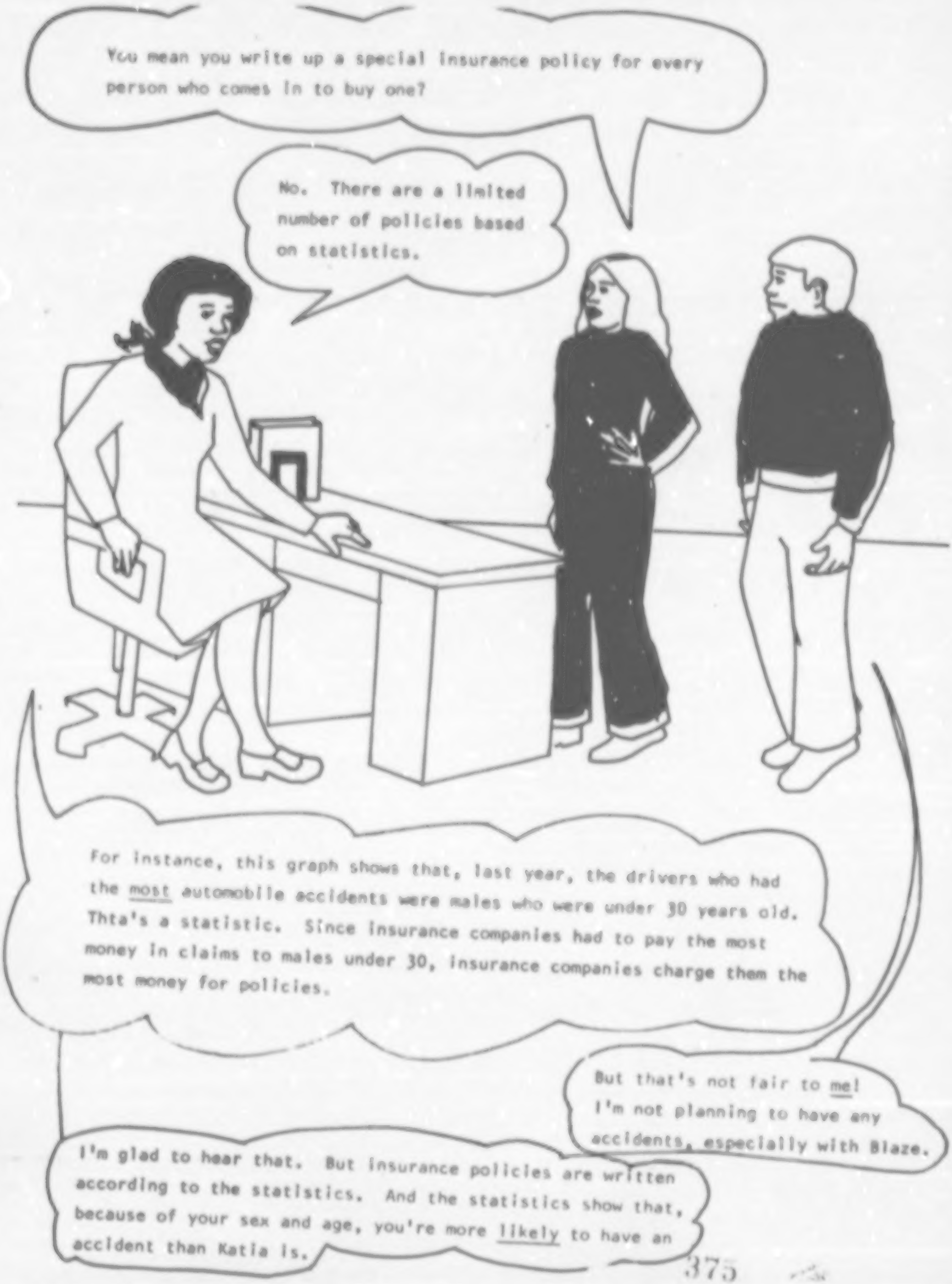
"Let's call our new car Blaze."

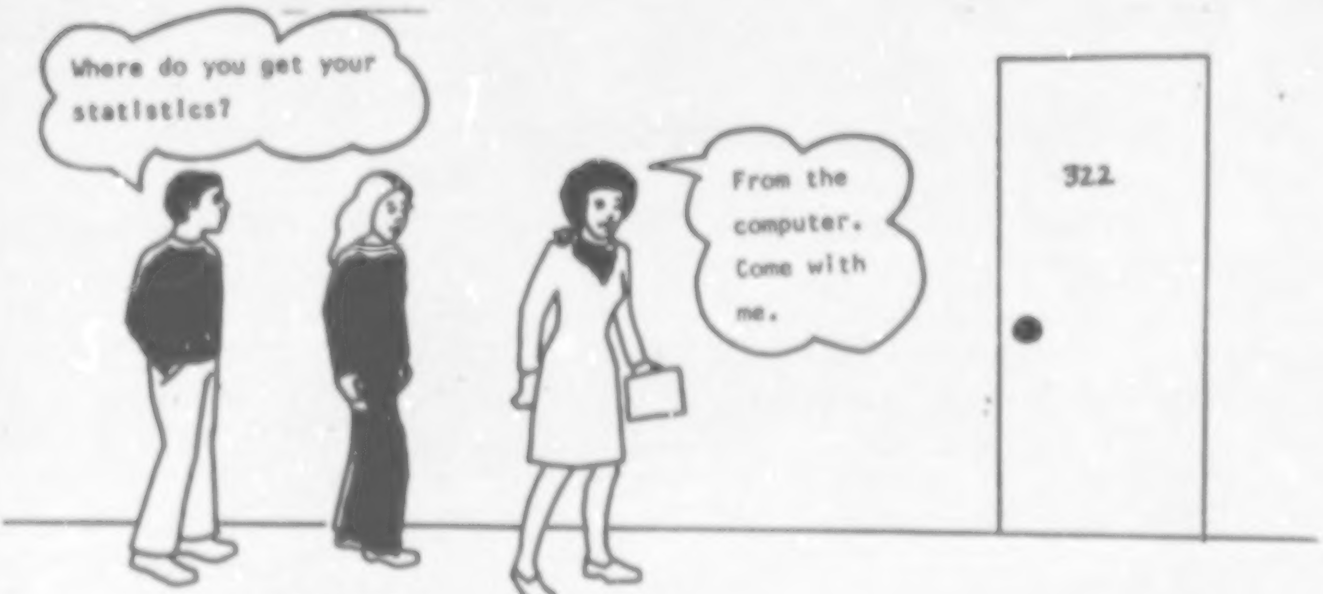

Blaze looks beautiful, Eric! We rebuilt the engine and repainted the body. I'm proud of what we did together.
Me too, Katia! Now all we need is insurance, and we'll be driving Blaze all over town.
Whose car **is it?**
Ours.

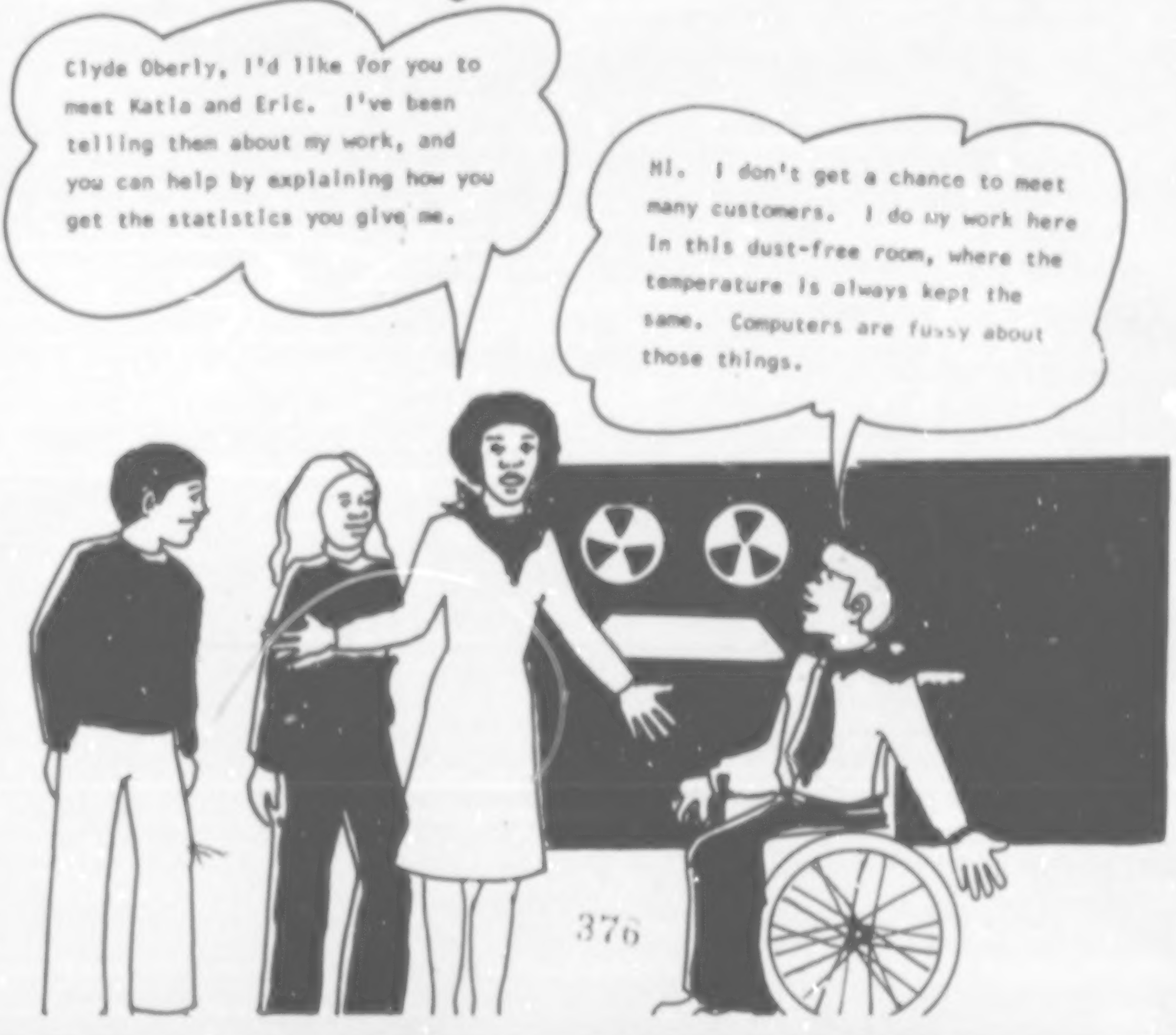

But the car can be insured in only one person's name.
I put up the most money to get Blaze on the road, so I think it should be in my name.
But I put in the most hours of work, so I think it should me in my name. Besides, I'm older. I'll be 21 next month. You're only 19.
We've decided to have the car insured in my name.
The insurance policy will be more expensive if it's in your name.

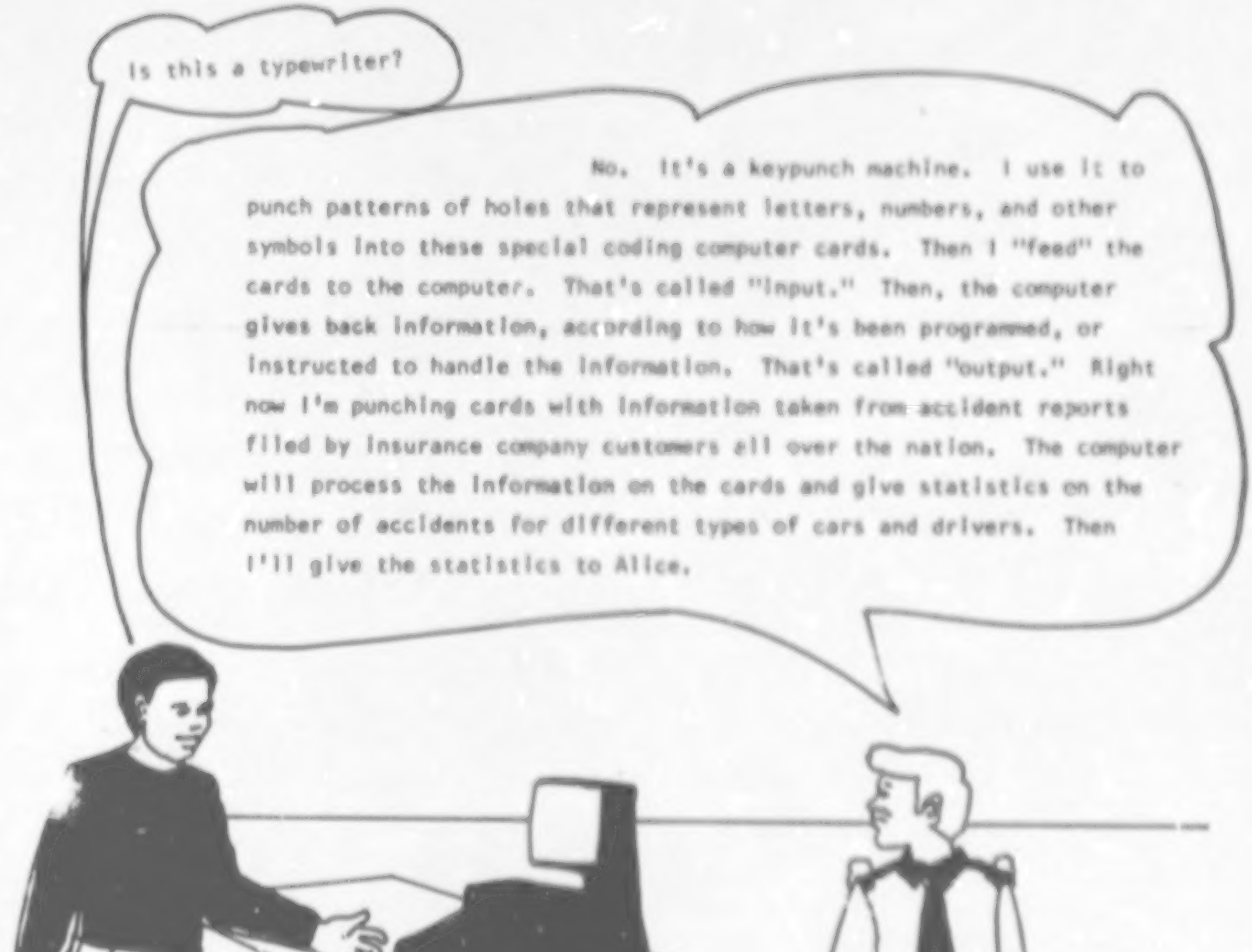

Why?
I'd like to explain that. I'm Alice Anderson. It's my job as Actuary to design and evaluate the insurance plans for this company, so I have to keep informed about economic and social trends, as well as legal developments that affect insurance practices. Actuaries use statistics to figure probabilities of death, illness, injury, unemployment, and other hazards to calculate payment rates. We also outline and update effective policy contracts. We help determine insurance company guidelines and practices and explain technical matters to company executives, government officials, and sometimes the public. Actuaries who work for the government may regulate insurance companies or supervise state or federal insurance pension plans. Some Actuaries may specialize in life and health insurance. My specialty is property and liability insurance.
I didn't understand very much of what you just said.
Follow me.

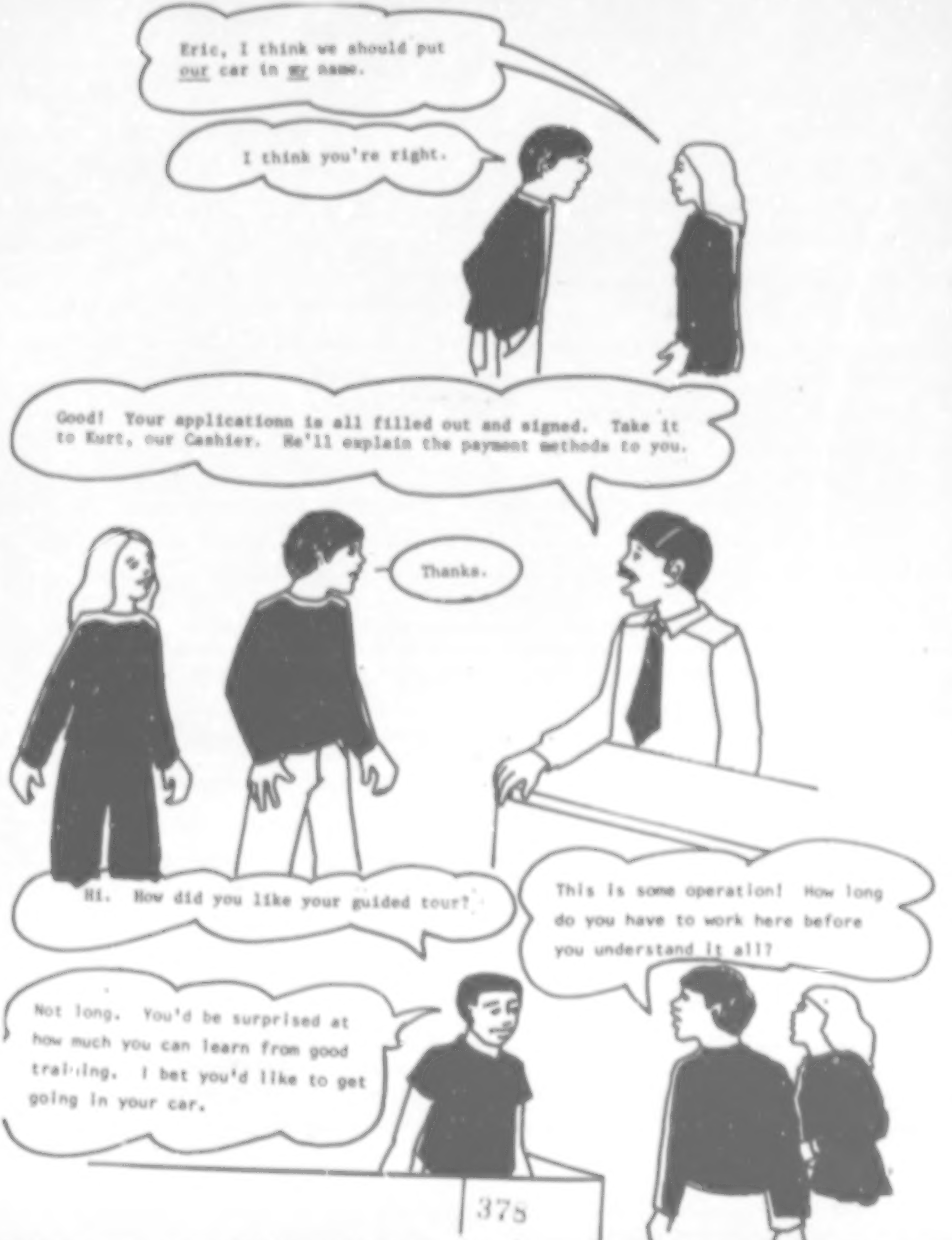

Very few people do understand what an Actuary does. But I think I can help you understand some important things about your automobile insurance policy.
To design insurance plans for this company, I use facts about the kind of car being insured, how much the car will be driven, the person insuring the car, how much driving experience the person has, the number of other people who'll be driving the car, and where the people live. With information like this, I can outline an effective automobile insurance contract.

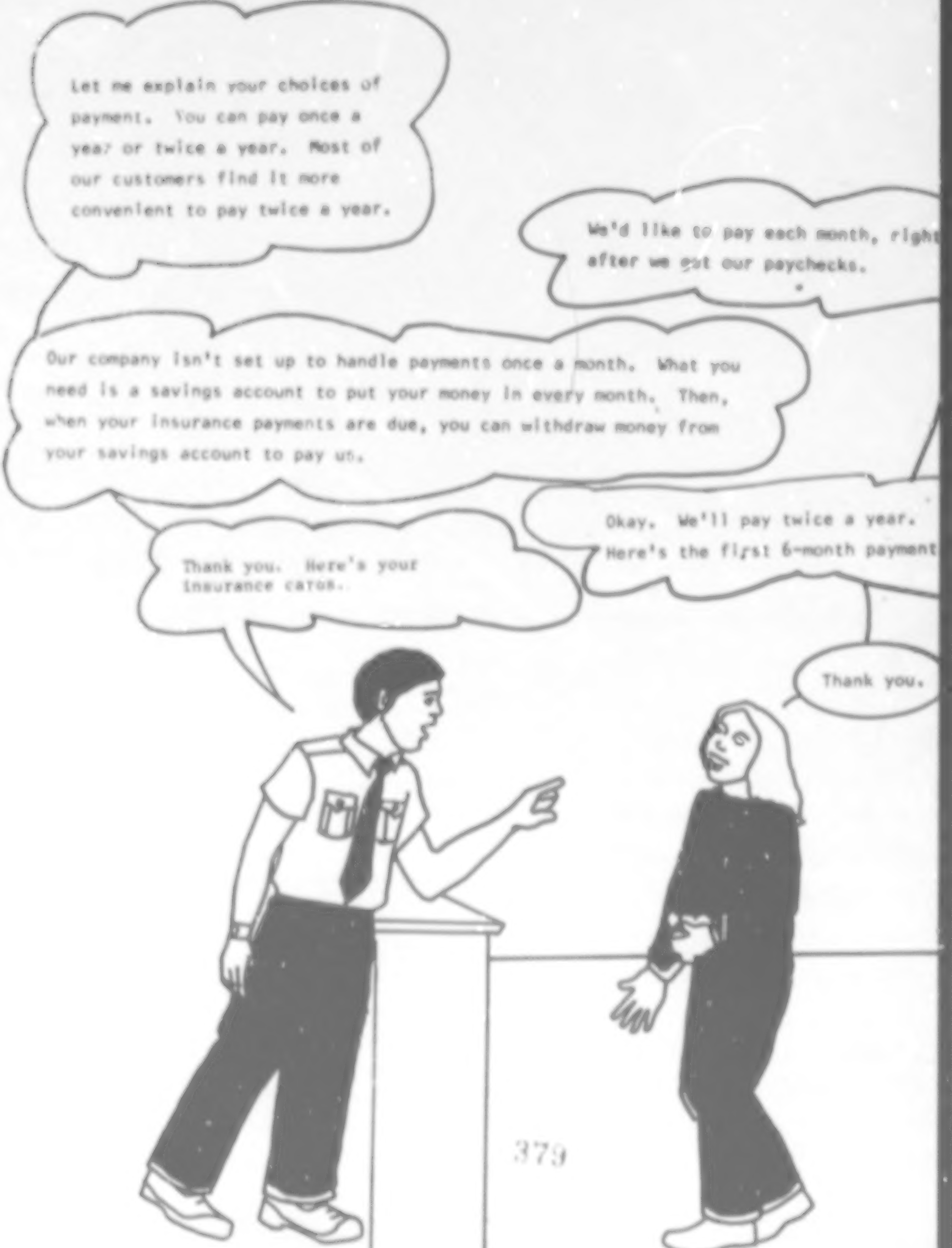

You mean you write up a special insurance policy for every person who comes in to buy one?
No. There are a limited number of policies based on statistics.
For instance, this graph shows that, last year, the drivers who had the most automobile accidents were males who were under 30 years old. Thta's a statistic. Since insurance companies had to pay the most money in claims to males under 30, insurance companies charge them the most money for policies.
But that's not fair to me! I'm not planning to have any accidents, especially with Blaze.
I'm glad to hear that. But insurance policies are written according to the statistics. And the statistics show that, because of your sex and age, you're more likely to have an accident than Katia is.

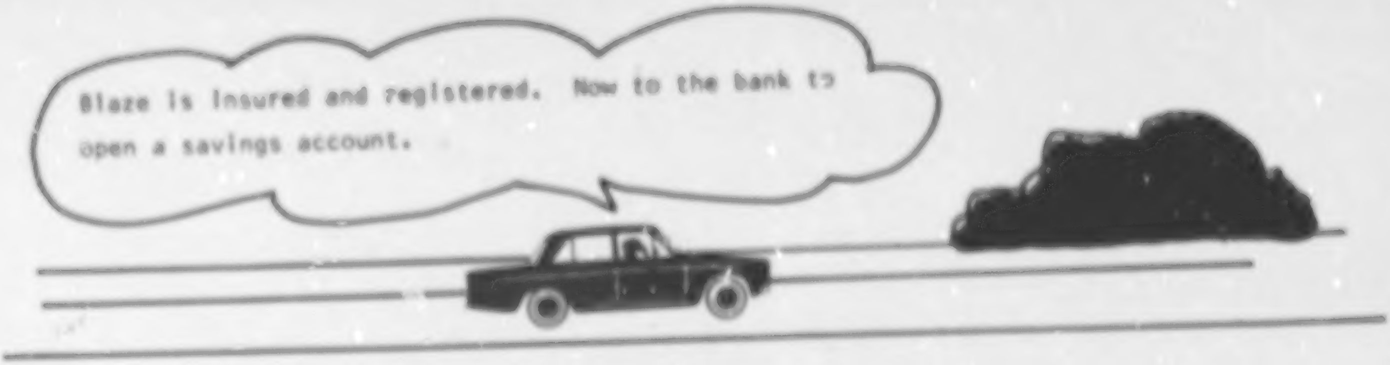

Where do you get your statistics?
From the computer. Come with me.
322

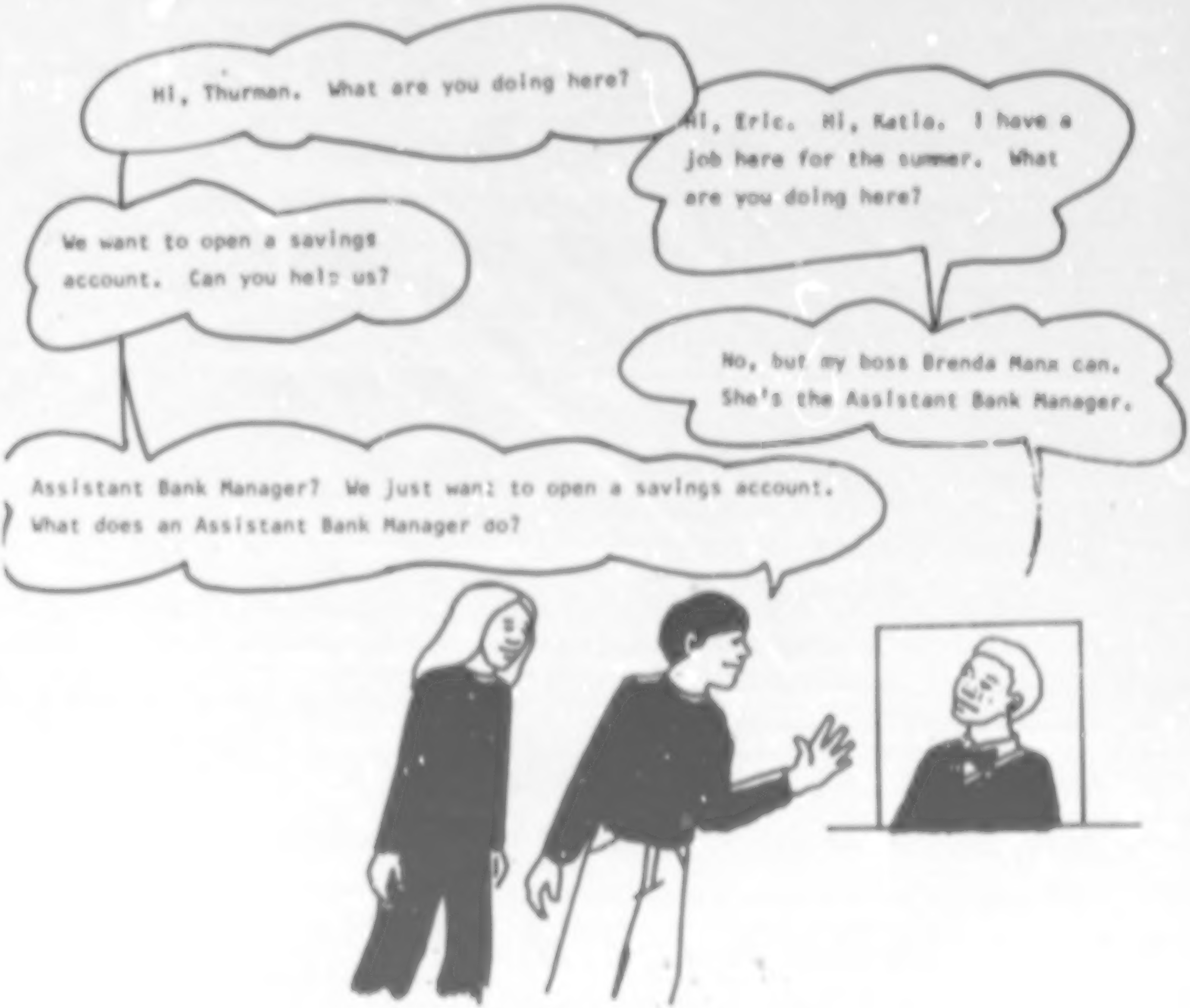

Clyde Oberly, I'd like for you to meet Katia and Eric. I've been telling them about my work, and you can help by explaining how you get the statistics you give me.
Hi. I don't get a chance to meet many customers. I do my work here in this dust-free room, where the temperature is always kept the same. Computers are fussy about those things.

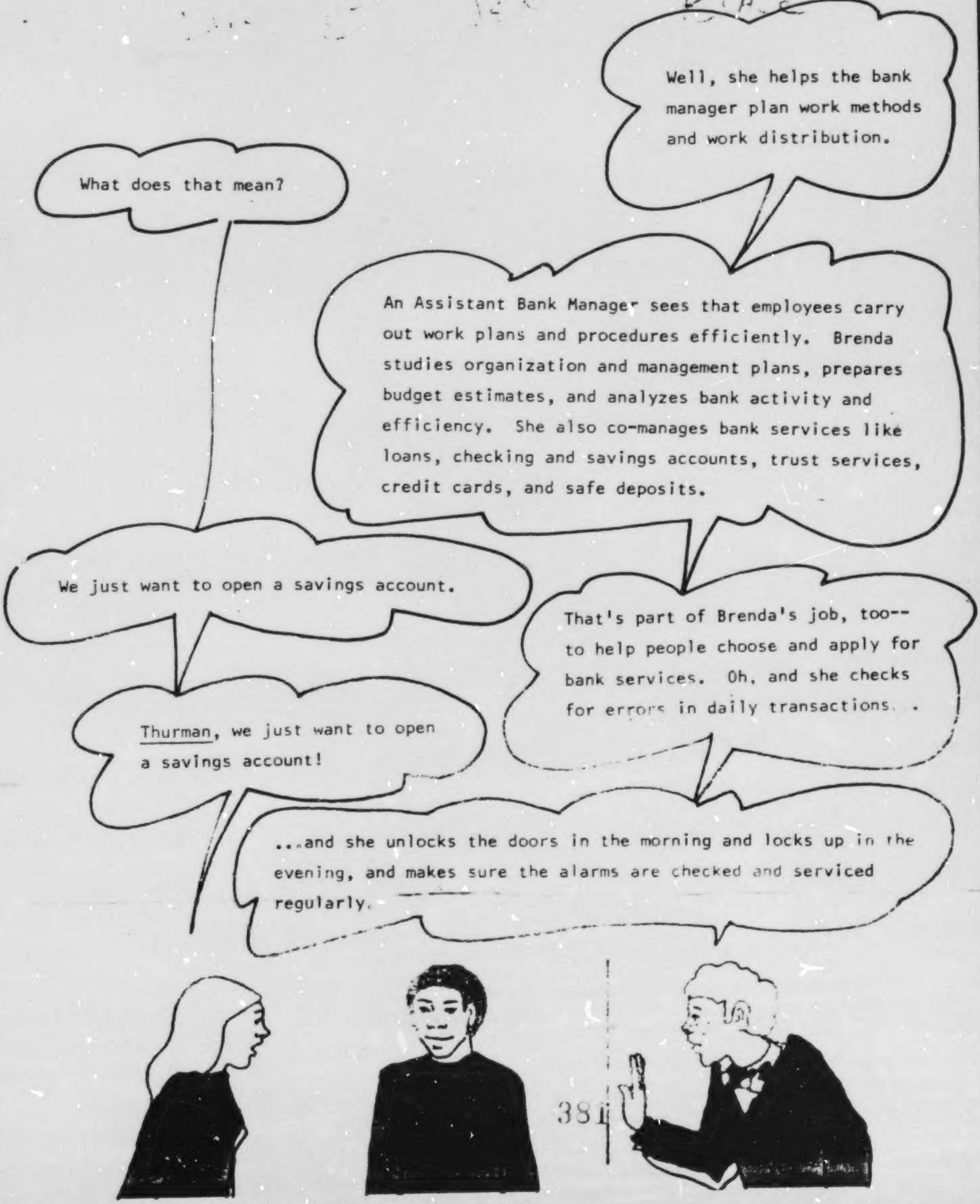

Is this a typewriter?
No. It's a keypunch machine. I use it to punch patterns of holes that represent letters, numbers, and other symbols into these special coding computer cards. Then I "feed" the cards to the computer. That's called "input." Then, the computer gives back information, according to how it's been programmed, or instructed to handle the information. That's called "output." Right now I'm punching cards with information taken from accident reports filed by insurance company customers all over the nation. The computer will process the information on the cards and give statistics on the number of accidents for different types of cars and drivers. Then I'll give the statistics to Alice.
This is a very complex operation, writing insurance policies.
Thanks, Clyde and Alice. I sure know a lot more now that I did before you explained things.

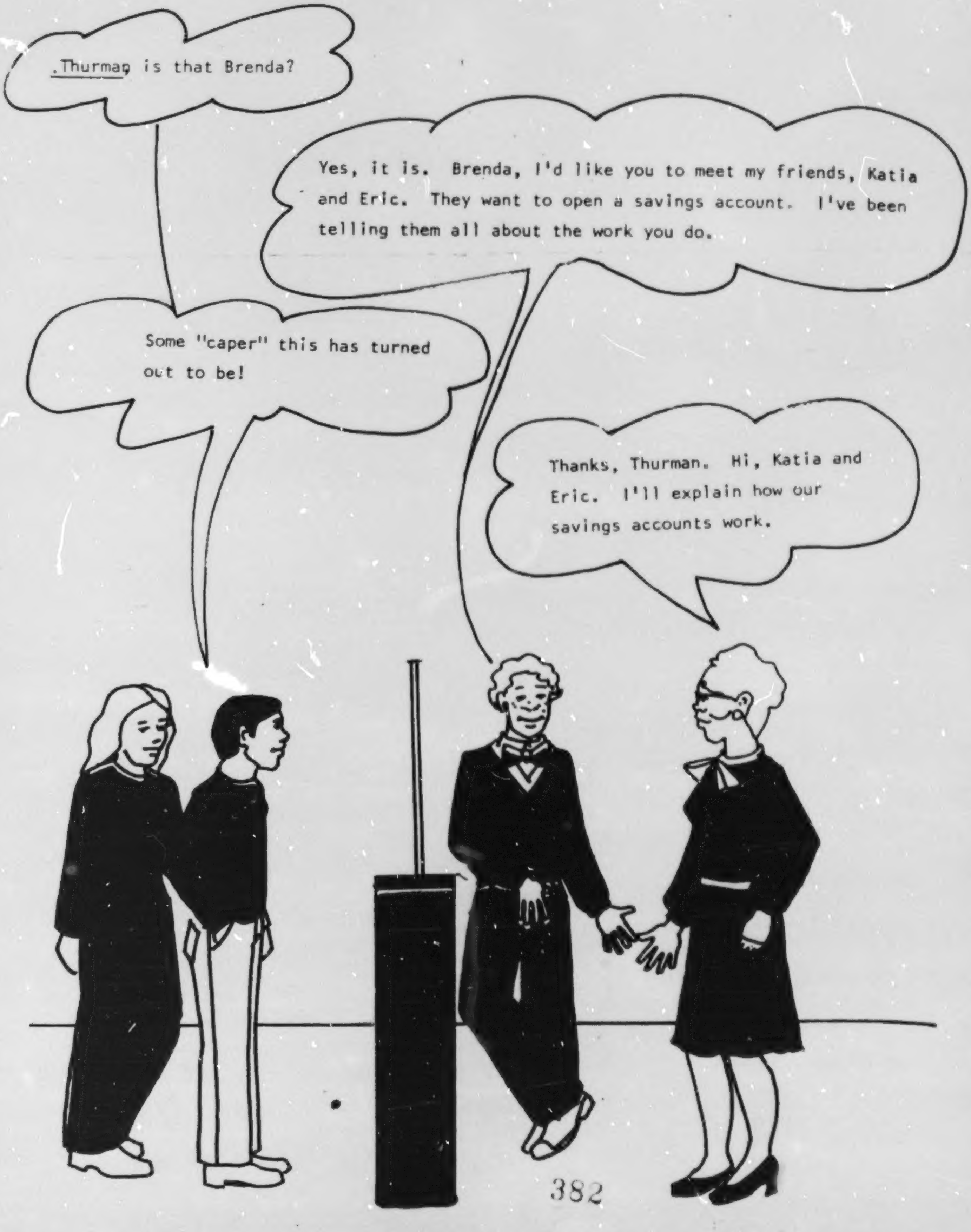

Eric, I think we should put our car in my name.
I think you're right.
Good! Your applicationn is all filled out and signed. Take it to Kurt, our Cashier. He'll explain the payment methods to you.
Thanks.
Hi. How did you like your guided tour?
This is some operation! How long do you have to work here before you understand it all?
Not long. You'd be surprised at how much you can learn from good training. I bet you'd like to get going in your car.

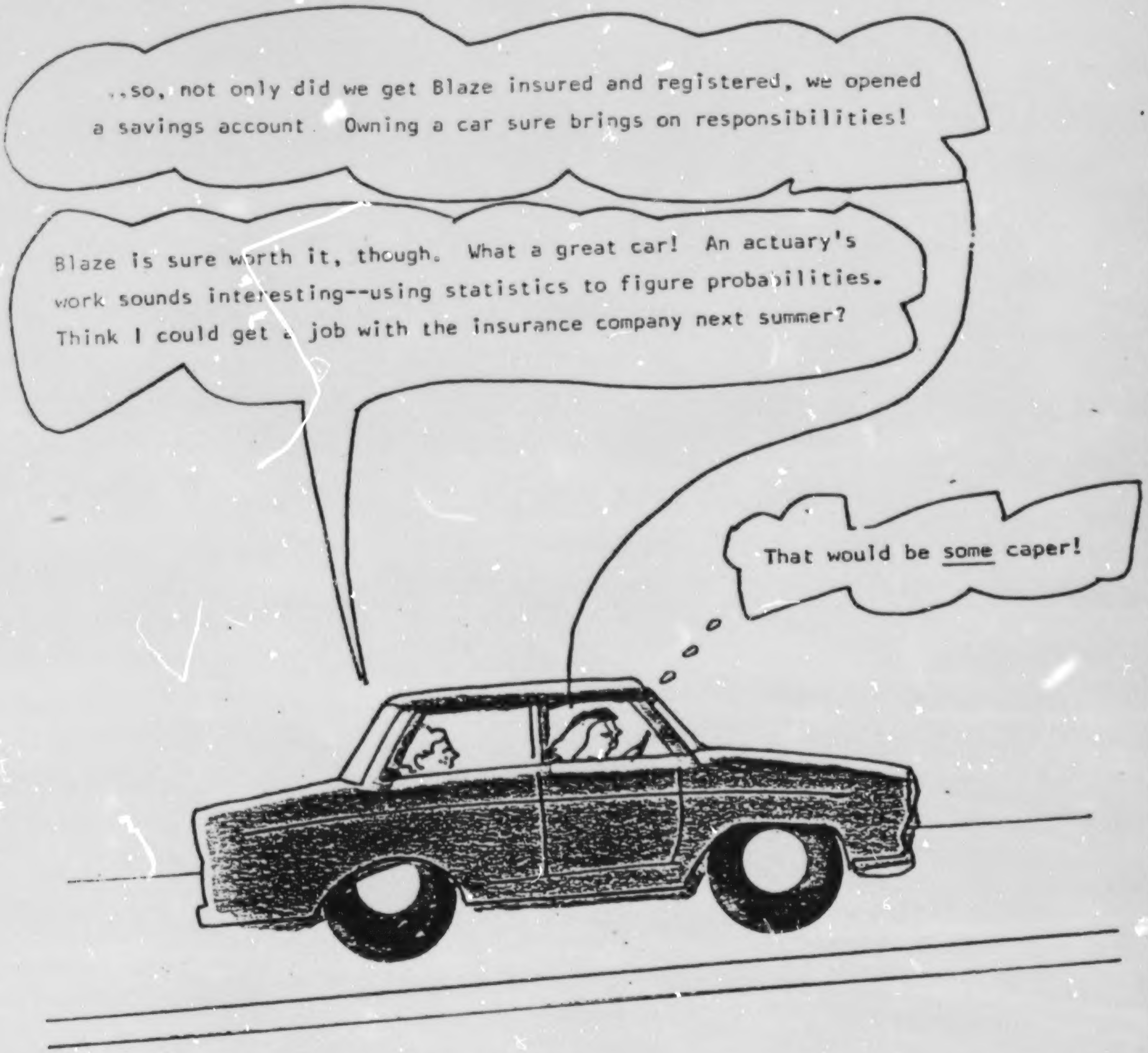

Let me explain your choices of payment. You can pay once a year or twice a year. Most of our customers find it more convenient to pay twice a year.
We'd like to pay each month, righ
after we get our paychecks.
Our company isn't set up to handle payments once a month. What you need is a savings account to put your money in every month. Then, when your insurance payments are due, you can withdraw money from your savings account to pay us.
Okay. We'll pay twice a year.
Here's the first 6-month payment
Thank you. Here's your insurance cards.
Thank you.


Blaze is insured and registered. Now to the bank to open a savings account.


Hi, Thurman. What are you doing here?
Hi, Eric. Hi, Katie. I have a job here for the summer. What are you doing here?
We want to open a savings account. Can you help us?
No, but my boss Brenda Manz can. She's the Assistant Bank Manager.
Assistant Bank Manager? We just want to open a savings account. What does an Assistant Bank Manager do?

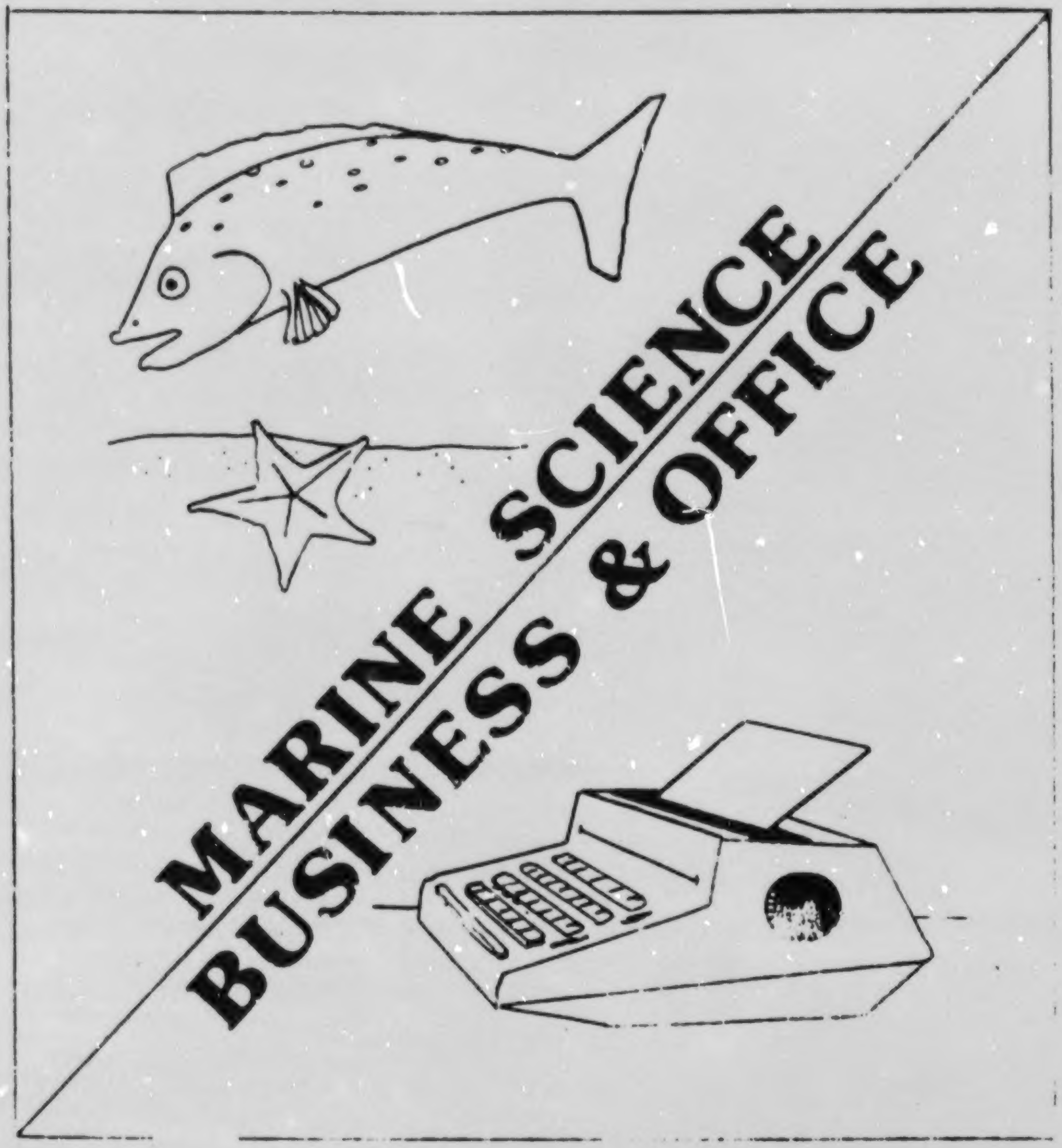

What does that mean?
Well, she helps the bank manager plan work methods and work distribution.
An Assistant Bank Manager sees that employees carry out work plans and procedures efficiently. Brenda studies organization and management plans, prepares budget estimates, and analyzes bank activity and efficiency. She also co-manages bank services like loans, checking and savings accounts, trust services, credit cards, and safe deposits.
We just want to open a savings account.
That's part of Brenda's job, too--to help people choose and apply for bank services. Oh, and she checks for errors in daily transactions. .
Thurman, we just want to open a savings account!
...and she unlocks the doors in the morning and locks up in the evening, and makes sure the alarms are checked and serviced regularly.


.Thurman is that Brenda?
Yes, it is. Brenda, I'd like you to meet my friends, Katia and Eric. They want to open a savings account. I've been telling them all about the work you do.
Some "caper" this has turned out to be!
Thanks, Thurman. Hi, Katia and Eric. I'll explain how our savings accounts work.


..so, not only did we get Blaze insured and registered, we opened a savings account. Owning a car sure brings on responsibilities!
Blaze is sure worth it, though. What a great car! An actuary's work sounds interesting--using statistics to figure probabilities. Think I could get a job with the insurance company next summer?
That would be some caper!

B7-J&R-5

Business and Office: Know More, Pay Less


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Use business and office workers activity.

Materials:

Included:
- Game board
- Directions
- 15 Banking cards
- 16 Job cards
- 25 Professional cards

Needed:
- Play money
- Paper clips
- Die
- Markers

Collect $100 every time you pass START

TOOLS
CLERICAL WORKER

WORK PLACE
CLERICAL WORKER

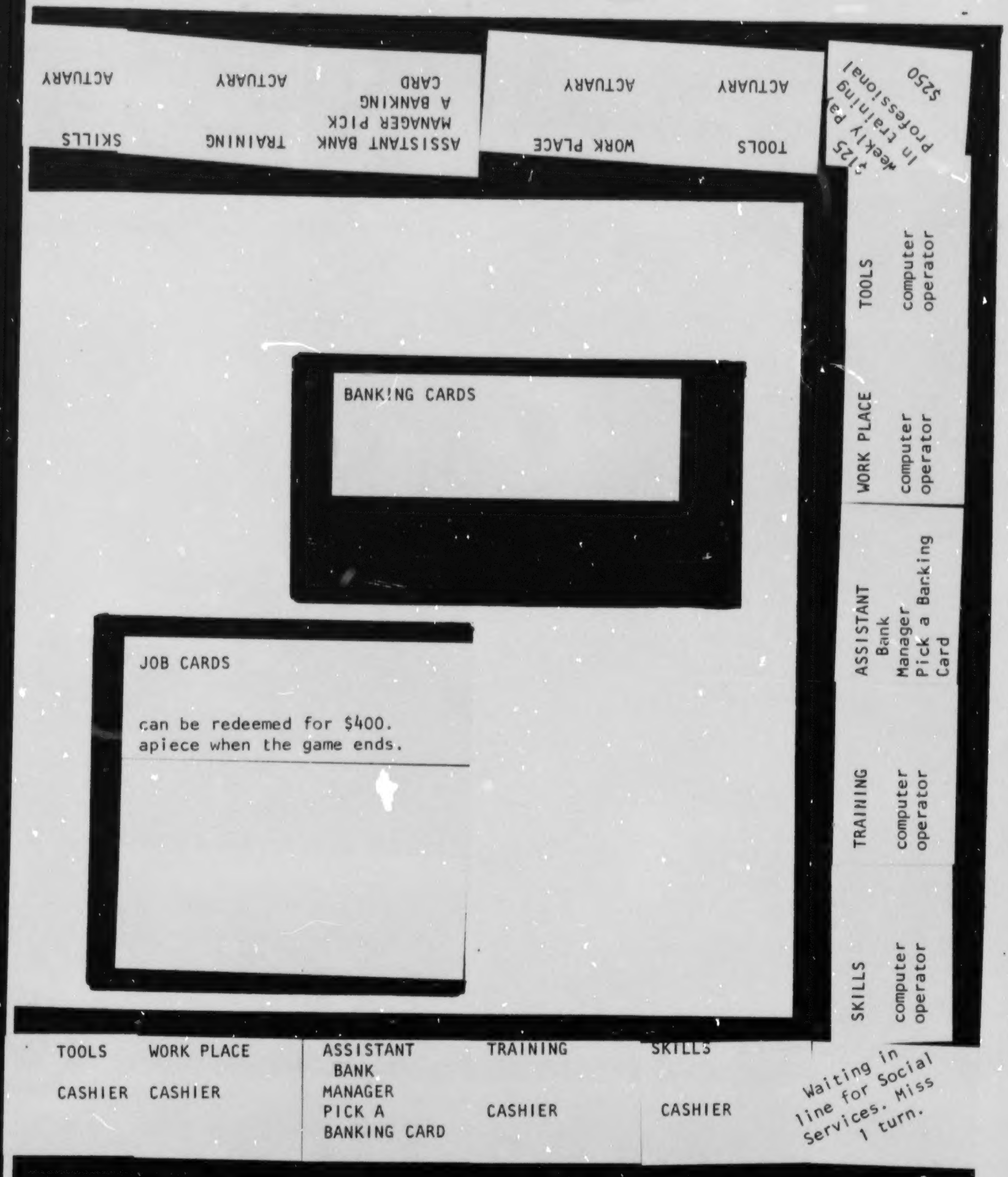
ASSISTANT BANK MANAGER PICK A BANKING CARD

TRAINING
CLERICAL WORKER

SKILLS
CLERICAL WORKER

Weekly Pay
In training $200
Professional $400

Each player starts
the game with:
2 $5. 2 $50.
2 $10. 1 $100.
2 $20. 1 $500.


$125 weekly pay in training
$250 professional
ACTUARY TOOLS
ACTUARY WORK PLACE
ASSISTANT BANK MANAGER PICK A BANKING CARD
ACTUARY TRAINING
ACTUARY SKILLS
TOOLS computer operator
WORK PLACE computer operator
ASSISTANT Bank Manager Pick a Banking Card
TRAINING computer operator
SKILLS computer operator
Waiting in line for Social Services. Miss 1 turn.
SKILLS CASHIER
TRAINING CASHIER
ASSISTANT BANK MANAGER PICK A BANKING CARD
WORK PLACE CASHIER
TOOLS CASHIER
BANKING CARDS
JOB CARDS

can be redeemed for $400. apiece when the game ends.

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

Mortgage payment due: $35.

You have a $100 credit line. If you use it, you must repay it, with 15% interest, the next time you pass START.

You forget to endorse the check you left in the night depository.

✂ Cut out three cards on vertical and horizontal lines.

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

Deduct $5 from your next loan or mortgage payment for every Assistant Bank Manager's tool you can name. Keep this card. Return it when you use it.	vault, Fast Cashier, ledger, safe deposit box, telephone, adding machine, cash, check, accounts, receipts, loan applications, cashier's check, night depository.
Deduct $5 from your next loan or mortgage payment for every Assistant Bank Manager's skill or task you can name. Keep this card. Return it when you use it.	HELPS THE BANK MANAGER TO: 1. Plan the way work in the bank should be done and see that the plans are carried out. 2. Administer services. 3. Check that everything is locked up and alarms working. 4. Prepare studies important to management and planning.
Deduct $5 from your next loan or mortgage payment for every Assistant Bank Manager's work place you can name. Keep this card. Return it when you use it.	1. Commercial banks. 2. Mutual Savings banks. 3. Specialized banks. 4. Private banks. 5. Financial institutions.
Deduct $5 from your next loan or mortgage payment for every Assistant Bank Manager's training place you can name. Keep this card. Return it when you use it.	1. High school and college: math, business, economics. 2. On-the-job. 3. Vocational courses given by banking associates.

✂ Cut out four double cards on vertical and horizontal lines, then fold each card in half on dotted lines with "Banking Card" facing out.

ACTUARY

SKILLS AND TASKS

B7-J&R-5

ACTUARY

TRAINING

B7-J&R-5

ACTUARY

TOOLS AND EQUIPMENT

B7-J&R-5

ACTUARY

WORK PLACES

B7-J&R-5

CLERICAL WORKER

TRAINING

B7-J&R-5

ACTUARY

Training:
1. High school: math.
2. College: bachelor's degree with a major in math, statistics, economics, business administration, insurance law, or accounting.
3. On-the-job training: from 5 to 10 years, to complete the entire series of examinations required for full professional status.

ACTUARY

Skills and tasks:
1. Keep informed about economic and social trends.
2. Design insurance and pension plans.
3. Calculate probabilities of death, sickness, injury, disability, unemployment, retirement, and property loss from accident, theft, fire, and other potential hazards.
4. Calculate insurance premium rates and policy contract provisions.

ACTUARY

Work places:
1. Private insurance companies.
2. Consulting firms.
3. Rating bureaus.
4. State government.
5. Federal government.

ACTUARY

Tools and equipment:
1. Calculating machines.
2. Numbers.
3. Statistics.
4. Graphs.
5. General office supplies.

CLERICAL WORKER

Training:
1. High school: English grammar, business English, spelling, typing, shorthand.
2. Business school or college.
3. On-the-job.
4. Specialization in one or more skills: helpful in getting better jobs and higher salaries.

✂ Cut out five cards on vertical and horizontal lines.

If you land on a Job Space that no player owns, you may buy the Job Card from the Bank.

What you pay for Job Cards:

If you know this many tools, skills, training, or work places, then you pay:

0	$400
1	$300
2	$200
1	$100
0	$5

If you decide not to buy the Job Card, pay $25 rent to the Bank.

If the Job Space you land on is owned by another player, you pay that player for job services.

Fees for Job Services:

If you own this many Job Cards in a set, then you are paid:

1	$25
2	$50
3	$75
4	$100

You can subtract as much as $20 from what you pay for job services. For every tool, skill, training, or work place you name, subtract $5 from the set fee.

When you own all 4 Job Cards in a set, you can buy your Professional License.

Fees for Professional Services:

1	$150
2	$200
3	$250
4	$300

Professional licenses cost $50 each. You can attach as many Licenses as you want to each Job Card and collect for Professional Services.

How to Play

Communication Know More Pay Less

87-J+R-5

PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5
PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5
PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5
PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5
PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5	PROFESSIONAL B7-J&R-5

Cut out 25 cards along vertical and horizontal lines.

CLERICAL WORKER

Skills and Tasks

SECRETARY

1. Answer phone, arrange appointments, arrange business entertainment details or travel arrangements.
2. Distribute and answer mail, handle confidential business records.
3. Take dictation and transcribe it by typing.

FILE CLERK

1. Classify, store, update, keep track of, and retrieve information.
2. Read incoming material and put it in order by means of some system (number, alphabet, subject matter).
3. According to needs, modify old filing systems or establish new ones.
4. Check files to be sure that everything is in its place.
5. Sometimes code and microfilm all incoming documents.
6. In small offices: type, sort mail, operate office machines.

STENOGRAPHER

1. Take dictation and transcribe it by typing.
2. Perform receptionist's duties: answer telephone, greet people, answer questions.

✂ Cut out three-part card along vertical and horizontal lines. Fold card on two dotted-folded lines; printed matter should be facing inside.

✓

CLERICAL WORKER

SKILLS & TASKS

B7-J&R-

CLERICAL WORKER

SKILLS & TASKS

B7-J&R-5

COMPUTER OPERATOR

Tools and equipment:

KEY PUNCH OPERATOR
Typewriter, adding machine, bookkeeping machine, key punch machine, computer.

PROGRAMMER
Flow chart, computer, general office supplies.

COMPUTER OPERATOR

Training:

KEY PUNCH OPERATOR

1. High school.
2. On-the-job.
3. Computer companies.

PROGRAMMER

1. College degree in math, business administration, accounting, engineering, or physics.
2. On-the-job.

COMPUTER OPERATOR

Work places:
In rooms that are dust free and are maintained at a constant temperature.

Government agencies, insurance agencies, transportation and utility companies, banks, manufacturing, and educational institutions.

COMPUTER OPERATOR

Skills and tasks: PROGRAMMER

1. Analyze problems presented by people and discover kinds of data needed to solve the problem.
2. Prepare flow chart to show the steps in sequence which the computer must take.
3. Write and code the instructions ("in-put") that control the work of a computer.
4. Test completed program, and correct ("debug") it if it doesn't work.

Skills and tasks: KEY PUNCH OPERATOR

1. Prepare data for "in-put" by punching patterns of holes that represent letters, numbers, and other symbols into special coding cards or into paper tapes.
2. Recognize defects in computer operation.
3. Cut tapes.
4. Sort and collate cards.

Cut out four cards on vertical and horizontal lines and fold on dotted lines.

COMPUTER OPERATOR

TOOLS AND EQUIPMENT

B7-J&R-5

COMPUTER OPERATOR

WORK PLACES

B7-J&R-5

COMPUTER OPERATOR

TRAINING

B7-J&R-5

COMPUTER OPERATOR

SKILLS AND TASKS

B7-J&R-5

CLERICAL WORKER

Tools and equipment:
Addressograph machine, typewriter, teletypewriter, proportional spacing typewriter, adding machine, duplicating machine, photocopy machine, telephone, dictating machine, file cabinet, microflim, electronic transmitter, mechanized files.

CLERICAL WORKER

Work places:
1. Courts.
2. Educational institutions.
3. Medical establishments.
4. Banks.
5. Insurance companies.
6. Factories.
7. Government agencies.

CASHIER

Tools and equipment:
Cash register, adding machine, bags, wrapping paper. telephone, name tag, sturdy shoes.

CASHIER

Work places:
Indoors, standing up.
All retail stores and shops, restaurants, cafeterias, theaters, hotels.
Insurance, loan, public utility companies and businesses.

CASHIER

Skills and tasks:
1. Use cash register.
2. Take money, make change, keep records of receipts and checks.
3. Fill out charge forms.
4. Prepare bank deposits.
5. Cash checks, operate ticket machines, wrap or bag purchases, stock merchandise.
6. May also operate switchboard, do bookkeeping, refer complaints to manager, make reservations, answer phone.

CASHIER

Training:
High school business subjects: business math, bookkeeping, typing.
On-the-job.

✂ Cut out six cards on vertical and horizontal lines.

CLERICAL WORKER
WORK PLACES

B7-J&R-5

CLERICAL WORKER
TOOLS AND EQUIPMENT

B7-J&R-5

CASHIER
WORK PLACES

B7-J&R-5

CASHIER
TOOLS AND EQUIPMENT

B7-J&R-5

CASHIER
TRAINING

B7-J&R-5

CASHIER
SKILLS AND TASKS

B7-J&R-5

You spent all your savings on your college education. Take out a $100 loan.	Collect 5% interest on your savings account: $25.
You have an outstanding history of paying all your bills on time. Take another turn.	You lost your checkbook. Miss 2 turns.
Your investment in a Florida land development project pays you $50.	Your loan payment is due: $50.
You overdrew your checking account. Deposit $25 in the Bank.	Bank lends you $100 to take a typing course.

✂ Cut out eight cards on vertical and horizontal lines.

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

B7-J&R-5

BANKING CARD

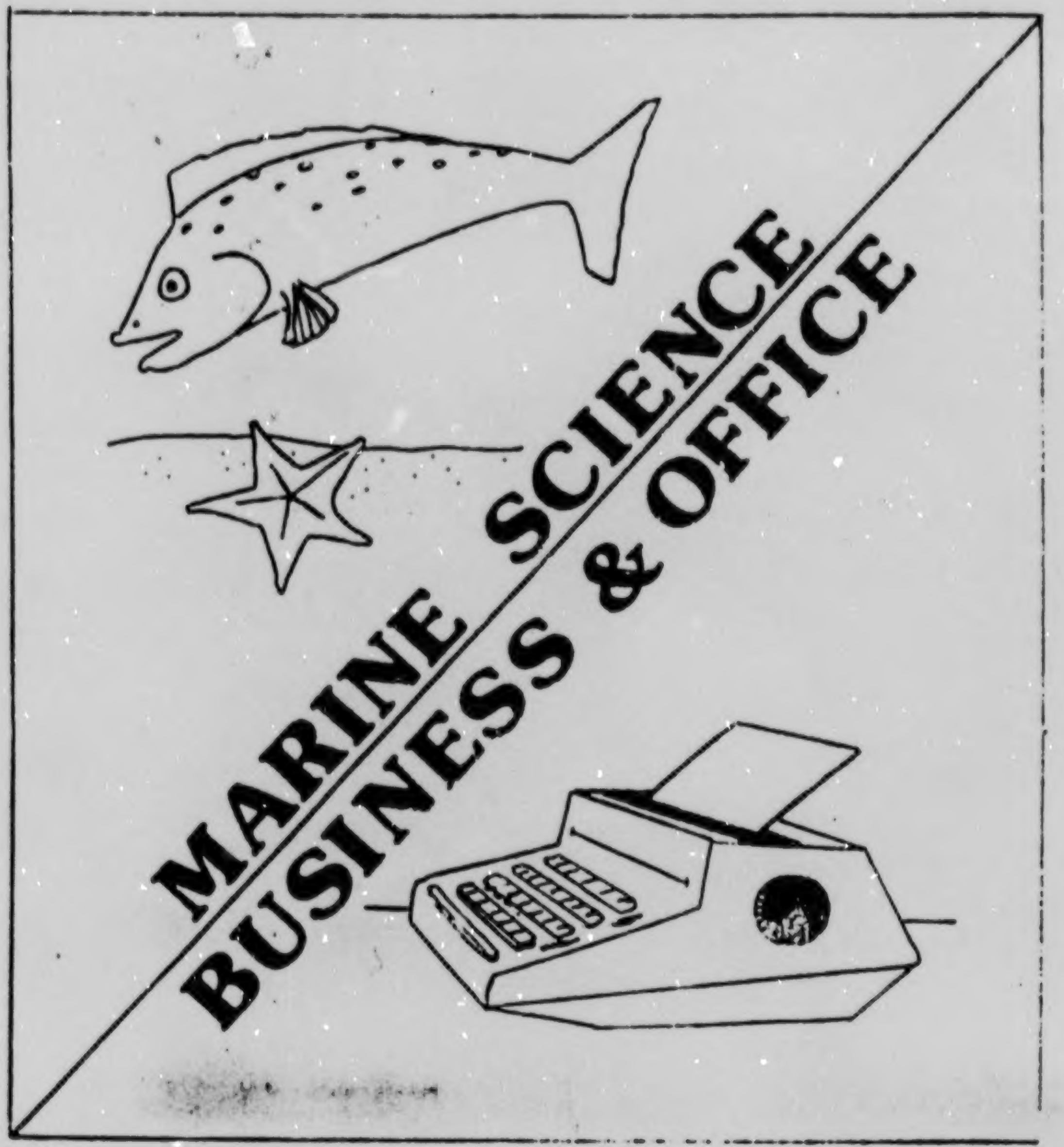
B7-J&R-5

BANKING CARD

B7-J&R-5

B7-J&R-6

Assorted Sorting Skills


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the directions inside and practice Business and Office Workers' on-the-job skills.

Materials:

Included:
  Directions
  48 Cards
  29 Bills (5 $1's, 4 $5's, 5 $10's, 7 $20's, 4 $50's, 4 $100's)

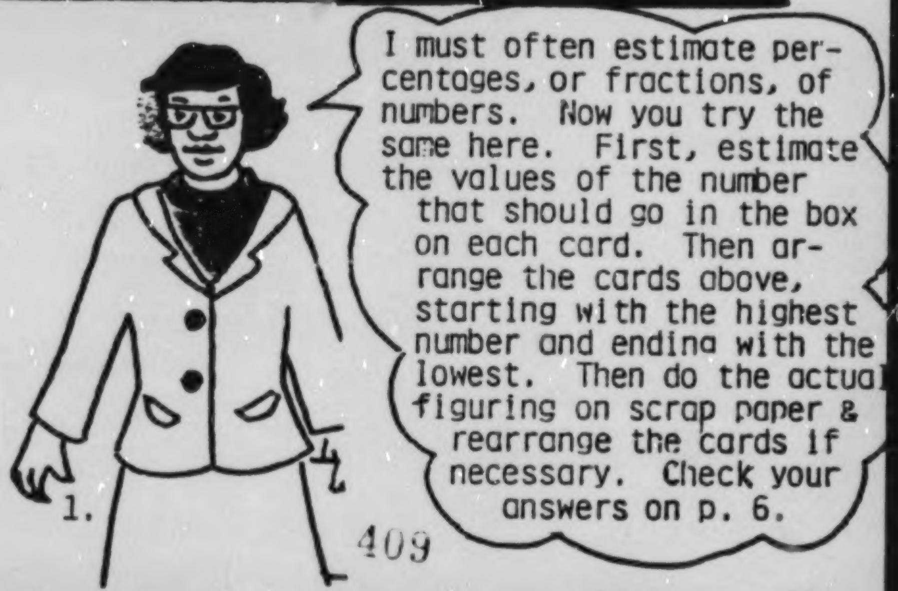
Needed:
  Pencil
  Scrap paper

HIGH

LOW

9 10 11 12

ACTUARY


I must often estimate percentages, or fractions, of numbers. Now you try the same here. First, estimate the values of the number that should go in the box on each card. Then arrange the cards above, starting with the highest number and ending with the lowest. Then do the actual figuring on scrap paper & rearrange the cards if necessary. Check your answers on p. 6.

1.

4

CLERICAL WORKER

Alphabetizing words is a big part of my job. When things are filed alphabetically, they are easier to find

Put these 12 names into alphabetical order, starting with the name beginning with letter(s) closest to A, and ending with the name beginning with the letter (s) closest to Z

1 2 3 4

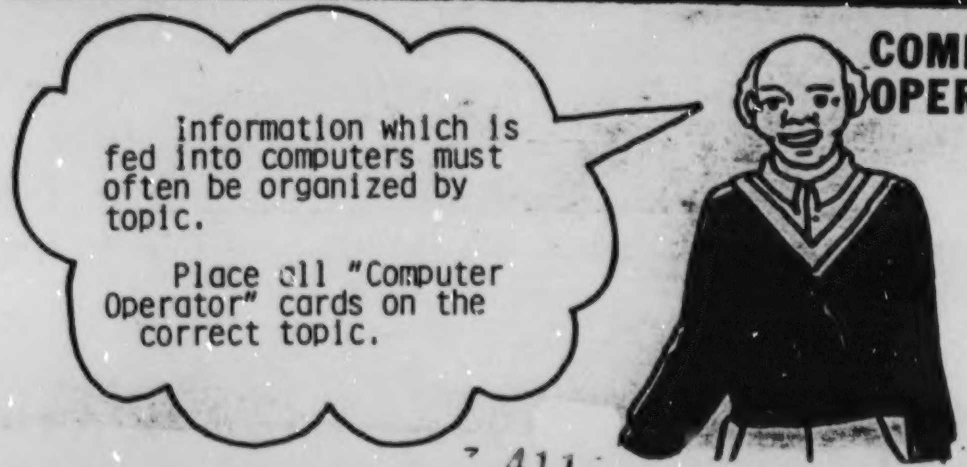
5 6 7 8

SEA LIFE

MARINE SCIENCE

OFFICE EQUIPMENT

COMPUTER OPERATOR



Information which is fed into computers must often be organized by topic.

Place all "Computer Operator" cards on the correct topic.

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Assistant
Bank Manager

B7-J&R-6

Cut out eight cards on vertical and horizontal lines.

Describe box sizes and explain rental terms to customer. Safe Deposit Box	Have signature card signed, check signature, and use 2 keys (1 customer key and 1 bank key) to open box. Safe Deposit Box	Rent box by collecting fee and giving a receipt and key to the customer. Safe Deposit Box	Return box to location, lock box with 2 keys, and return customer's key. Safe Deposit Box
photocopy machine	calculator	teletypewriter	ledger

Cut out 4 bills along vertical and horizontal lines.

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

5 5

FIVE

5 5

5 5

FIVE

5 5

5 5

FIVE

5 5

5 5

FIVE

5 5

Cut out eight cards on vertical and horizontal lines.

Martin	Reynolds	Quick	Ryder
Pugliese	Rider	Mertine	McGuire

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Clerical Worker

B7-J&R-6

Cut out 4 bills along vertical and horizontal lines.

CHOICE

B7–J&R–6

CHOICE

B7–J&R–6

CHOICE

B7–J&R–6

CHOICE

B7–J&R–6

20 20

TWENTY

20 20

20 20

TWENTY

20 20

20 20

TWENTY

20 20

CHOICE B7-J&R-6
CHOICE B7-J&R-6
CHOICE B7-J&R-6
CHOICE B7-J&R-6

CHOICE

B7-J&R-6

Cut out 5 bills
along horizontal
and vertical lines.

10 10 10 10

TEN

TEN

10 10

10 10

TEN

10 10 10 10

10 10

TEN

10 10

10 10

TEN

10 10

Cut out eight cards on vertical and horizontal lines.

roe	crustacean	algae	plankton
Nansen bottle	Secchi disk	sonograph	seine

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Clerical Worker B7-J&R-6	Clerical Worker B7-J&R-6	Clerical Worker B7-J&R-6	Clerical Worker B7-J&R-6
Actuary B7-J&R-6	Actuary B7-J&R-6	Actuary B7-J&R-6	Actuary B7-J&R-6

Cut out eight cards on vertical and horizontal lines.

Owens	Noble	Palen	Quinn
25% (1/4) of 8,800 ☐	25% (1/4) of 12,240 ☐	10% (1/10) of 6,980 ☐	50% (1/2) of 4,690 ☐

Cut out eight cards on vertical and horizontal lines.

50% (1/2) of 5,950 ☐	75% (3/4) of 11,256 ☐	75% (3/4) of 5,028 ☐	10% (1/10) of 13,180 ☐
50% (1/2) of 11,580 ☐	25% (1/4) of 9,352 ☐	75% (3/4) of 10,160 ☐	10% (1/10) of 7,260 ☐

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

Actuary

B7-J&R-6

20 20

TWENTY

20 20

20 20

TWENTY

20 20

20 20

TWENTY

20 20

20 20

TWENTY

20 20

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

Cut out 3 bills along vertical and horizontal lines.

1 1 1 1

ONE

ONE

1 1

1 1

ONE

1 1 1 1

1 1

ONE

1 1

1 1

ONE

1 1

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

CHOICE

B7-J&R-6

Cut out 5 bills
along horizontal
and vertical lines.

100 100

ONE HUNDRED

100 100
100 100

ONE HUNDRED

100 100
100 100

ONE HUNDRED

100 100
100 100

ONE HUNDRED

100 100

50 50

FIFTY

50 50

50 50

FIFTY

50 50

50 50

FIFTY

50 50

50 50

FIFTY

50 50

Cut out eight cards on vertical and horizontal lines.

Explain interest and different kinds of accounts to bank customer. Savings Account	Prepare new account bank book with customer's name and address. Post initial deposit. Savings Account	Take deposit slip and money. Enter new total in bank book. OR... Take withdrawal slip and give customer money if making a withdrawal. Savings Account	Post interest earned in bank book and keep an up-to-date total. Savings Account
When application is turned in, read it, and find out about applicant's financial background. Loan	Hand out and explain loan application to applicant. Loan	Determine whether to accept or reject applicant's application. Loan	Inform applicant of decision. Loan

Assistant
Bank Manager
B7-J&R-6

Assistant
Bank Manager
B7-J&R-6

Assistant
Bank Manager
B7-J&R-6

Assistant
Bank Manager
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

Computer
Operator
B7-J&R-6

ASSISTANT BANK MANAGER

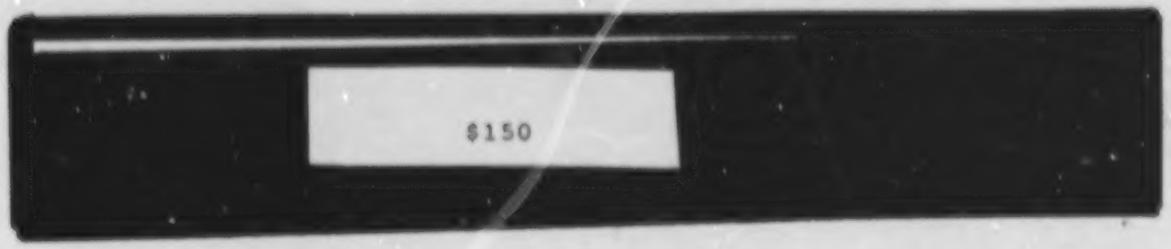
My job includes making sure that things at the bank run smoothly. It's very important that I plan the steps of each task so that first things are done first, and the next steps follow in a logical sequence.

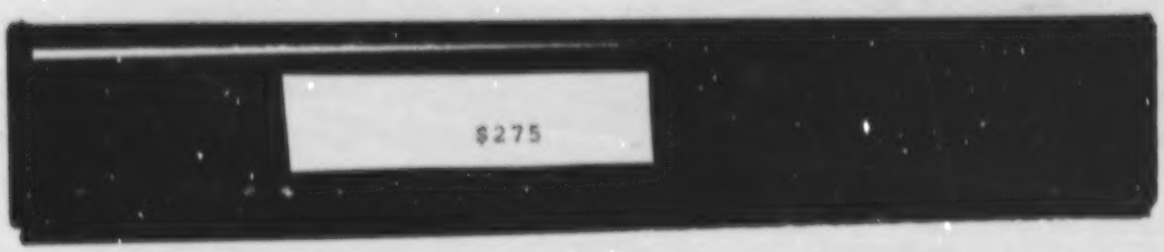
Try it out for yourself. Put the steps described on each task card in the most logical order.

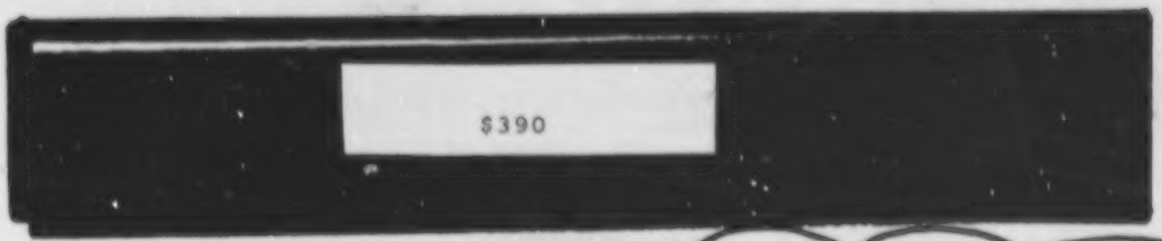
MAKING A LOAN

OPENING A SAVINGS ACCOUNT

RENTING A SAFE DEPOSIT BOX







CASHIER

Many people ask for a certain kind of "cash distribution." They want a mix of large and small bills.

Your task is to divide the bills here so that the sums of $150, $275, and $390 include both large ($100) and small bills.

You have a limited number of bills to work with and you may not use the same bill more than once.

5.

ANSWERS

Page 1 - Actuary

1. 25% (1/4) OF 8,800 $\boxed{2,200}$	2. 75% (3/4) OF 10,160 $\boxed{7,620}$	3. 50% (1/2) OF 11,580 $\boxed{5,790}$	4. 75% (3/4) OF 5,028 $\boxed{3,771}$
5. 25% (1/4) OF 12,240 $\boxed{3,060}$	6. 50% (1/2) OF 5,950 $\boxed{2,975}$	7. 50% (1/2) OF 4,690 $\boxed{2,345}$	8. 25% (1/4) OF 9,352 $\boxed{2,338}$
9. 25% (1/4) OF 8,800 $\boxed{2,200}$	10. 10% (1/10) OF 6,980 $\boxed{698}$	11. 10% (1/10) OF 7,260 $\boxed{726}$	12. 10% (1/2) OF 6,980 $\boxed{698}$

Page 2 - Assistant Bank Manager

	1	2	3	4
Loan:	Hand out ...	When application ...	Determine whether ...	Inform applicant ...
Savings:	Explain interest ...	Prepare new ...	Take deposit ...	Post interest ...
Safe Deposit:	Describe box ...	Have signature ...	Rent box ...	Return box ...

Page 3 - Cashier

There are several different ways to divide the bills. Here is one way:

$150 - 1 $100, 1 $20, 2 $10's, 1 $5, 5 $1's
$275 - 1 $100, 3 $50's, 1 $20, 1 $5
$390 - 2 $100's, 1 $50, 5 $20's, 3 $10's, 2 $5's

What are some other ways?

Page 4 - Clerical Worker

Martin, McGuire, Mertine, Noble, Owens, Palen, Pugliese, Quick, Quinn, Reynolds, Rider, Ryder

Page 5 - Computer Operator

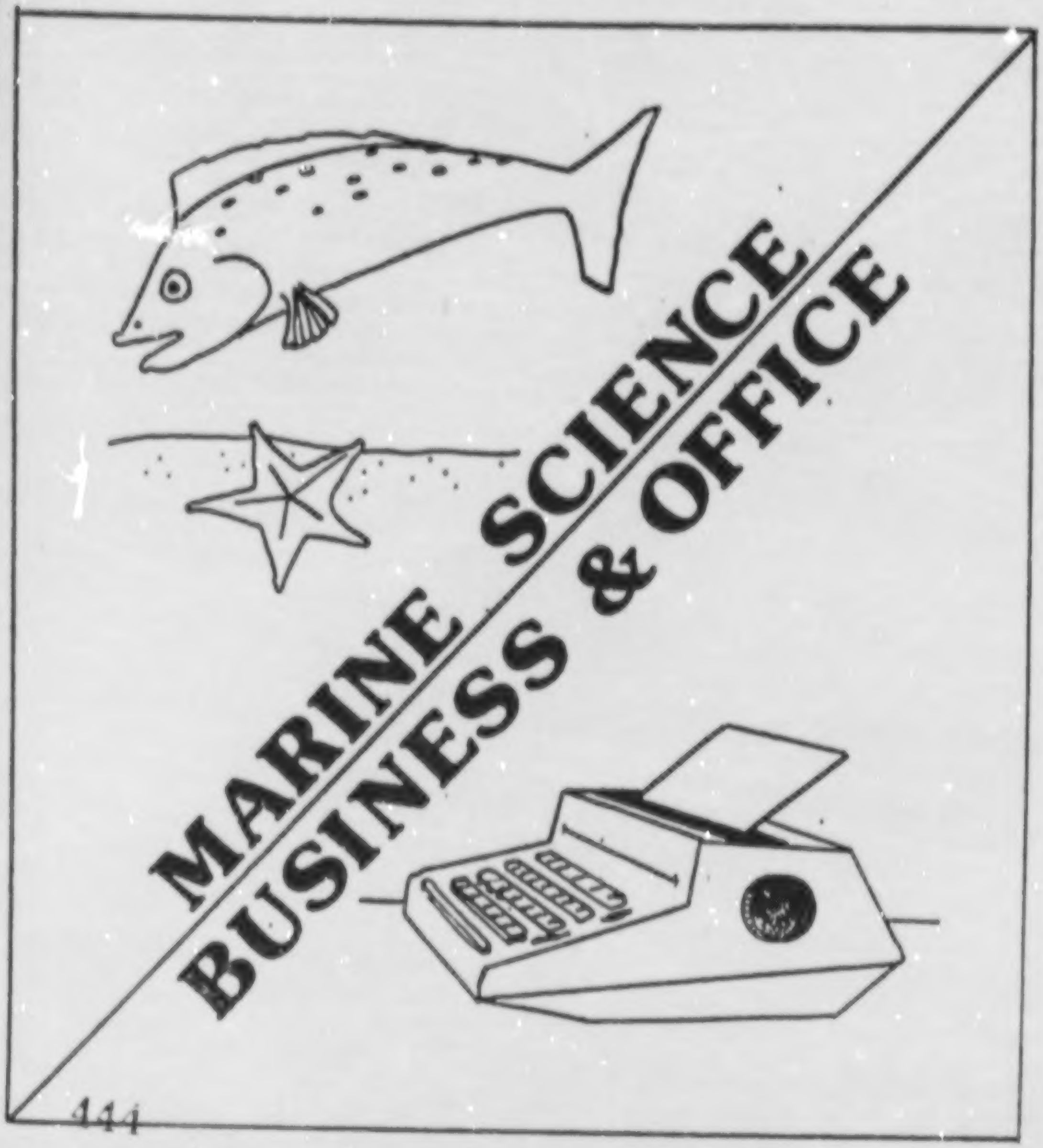
Sea Life: algae, crustacean, plankton, roe

Marine Science: Nansen bottle, Secchi disk, seine, sonograph

Office Equipment: calculator, ledger, photocopy machine, teletypewriter

B7-J&R-1-7

Office Party


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the poem inside.

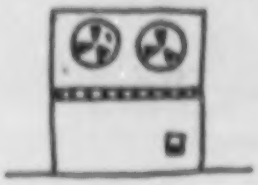
Materials

Included:
Poem

Needed:
None

Office Party

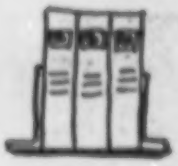
If you answer this question, we'll make the bell ring.
Where do computer operators do their thing?



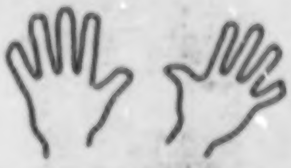
Organizations with computers have rooms and such
That are dust free, with temperatures that don't vary much.
These places are located at government agencies,
Scientific institutions, and utility companies.
Even small business, in the near future,
Will enjoy the convenient, time saving computer.

If you tell us this answer, we'll play a drum.
What equipment do you use?
What tools help you some?

Well, key punch operators use cards especially punched.
Typewriters and adding machines also help a bunch.
Since programmers must do research, and use the library,
Reference materials are important data sources for me.
Flow charts show the steps a computer will take;
As programmer, I make and check them to avoid computer mistakes.

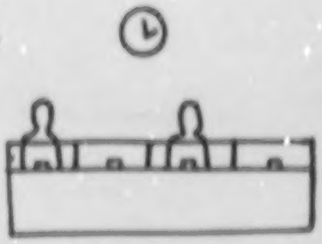


To get trained for your job, what do you do?
If you answer us now, we'll clap for you.



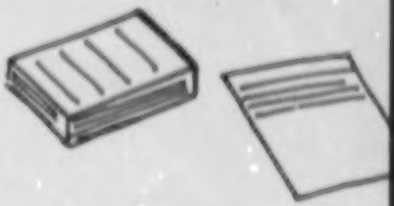
Key punch operators can learn at junior college,
And vocational school courses also offer useful knowledge.
Computer companies may offer to train
Someone who shows interest in the computer vein.
A programmer, however, needs a college degree
In math, engineering, or business, you see.
On-the-job training is the best way to learn,
And if you work conscientiously, good money you can earn.

If you answer this question, we'll make the bell ring.
Where do assistant bank managers do their thing?

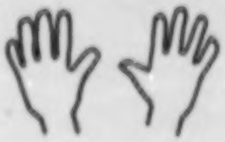


Well, there are all sorts of banks, and I'll tell you 'bout a few.
Commercial banks handle checking, loans, and services for you.
Savings banks are primarily for savings accounts,
And to make mortgage loans for large amounts.
Private banks and financial institutions everywhere
Need managers and assistants to keep order there.

If you tell us this answer, we'll play a drum.
What equipment do you use?
What tools help you some?



Of course, I use a calculator to do spot-checks every day,
And I record all transactions in my ledger.
Receipts and other documents help keep our records straight,
And convenient service applications make working a pleasure.



To get trained for your job, what do you do?
If you answer us now, we'll clap for you.

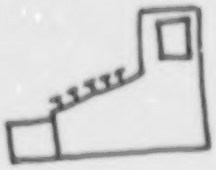
I took high school math courses, worked as a teller on vacation;
College business and management courses took four years, but I was patient.
I was well prepared to run a bank without losses,
And to bone up on my skills, I take night management courses.

If you answer this question, we'll make the bell ring.
Where do cashiers do their thing?

We're usually on our feet, but sometimes we get a seat.
We work mostly indoors, but in more than just stores.
We're found where money's exchanged for things that people want
At agencies, banks, hotels, hospitals, and restaurants.

If you tell us this answer, we'll play a drum.
What equipment do you use?
What tools help you some?

A cash box or register's most important to me,
But I might use charge account booklets, and price lists, you see.
Depending on my place of work, I might make reservations,
And use calendars or schedules for trains leaving their stations.
I might use boxes and bags, and a basket for trash,
But a cashier's most important tool is, you guessed it...cash!



To get trained for your job, what do you do?
If you answer us now, we'll clap for you.

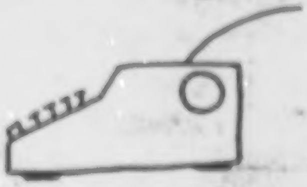
I took math in high school. I calculate fast and well.
That was all the training needed for my first working spell.
Then I decided to give myself a better chance.
I studied typing, bookkeeping, business math,
And my position sure has advanced.

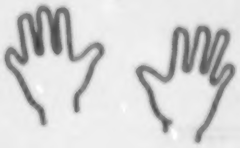
If you answer this question, we'll make the bell ring.
Where do clerical workers do their thing?

Clerical workers can be found
In almost any office, in cities and towns.
At public agencies, private businesses, and banks,
Factories, and religious centers add us to their ranks.
Any place that needs someone to organize files,
Or type, or make appointments, or greet people with a smile
May hire a secretary, typist, stenographer, or clerk.
Desk jobs in offices are our "type" of work.

If you tell us this answer, we'll play a drum.
What equipment do you use?
What tools help you some?

We use calculators to get our figures straight,
And stenographer's notebooks to take notes quick.
Ledgers keep records of transactions and price rates,
And our appointment books and calendars grow mighty thick.
We organize data with typewriters and files;
Office phones help us send messages over the miles.
Clips, pencils, erasers, typewriters and pens
Are office supplies that we value like gems.

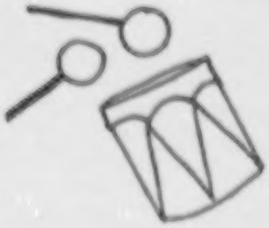




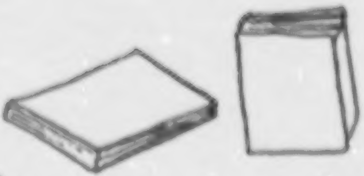
To get trained for your job, what do you do?
If you answer us now, we'll clap for you.
Well reading and spelling are the subjects that count,
While typing and business courses also help a great amount.
On-the-job experience can get your foot in the door,
And our International Union offers benefits galore.

If you answer this question, we'll make the bell ring.
Where do actuaries do their thing?

A rating bureau's where I work with ease.
We supply important data to insurance companies.
I've worked for government programs, and private firms,
Most actuaries work in large cities.



If you tell us this answer, we'll play a drum.
What equipment do you use?
What tools help you some?



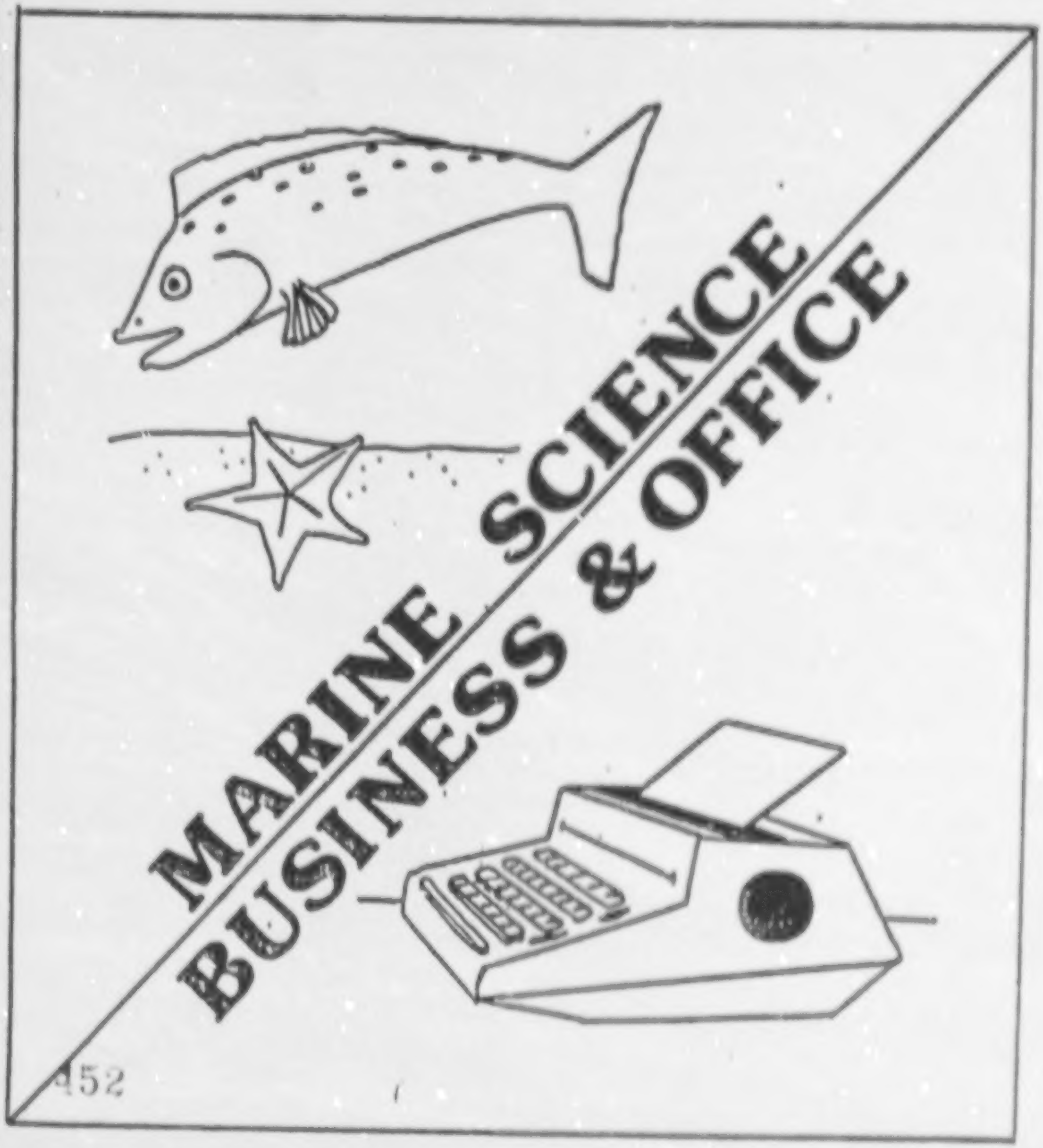
I get a lot of information from legal reference books.
Policy guidelines and contracts are found in all my office nooks.
I use statistics and graph data for payment claims.
Professional magazines and pencils also help me reach my aims.

To get trained for your job, what do you do?
If you answer us now, we'll clap for you.

Five - ten years of on-the-job training
Prepare one for a series of exams.
A passing grade gives you professional status,
And you can help insurance customers be happy as clams.

B7-SA-1

Slick Raymond and Ugly Malvina


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the questions and the story about the feelings of belonging and rejection.

Materials:

Included:
  Questions
  Story
  Pictures

Needed:
  None

THINK ABOUT THESE AS YOU READ

Prejudice means judging (judice), before (pre) the facts are known. Prejudice can cause people to think untrue things about others.

In "Slick Raymond and Ugly Malvina," kids show prejudice toward Raymond because of the way he looks and dresses, and because he comes from a city.

What are the ideas kids have about Raymond?
What effect do these ideas have on Raymond? On Malvina? On the storyteller?

Kids are prejudiced toward Malvina too.

What are their ideas about her?
What are some results of the ideas kids have about Malvina?

What's one prejudice you've had toward someone because of the way s/he looked?

What's one effect of prejudice in general?

SLICK RAYMOND AND UGLY MALVINA

Malvina moved away last week and she never even said goodbye. 'Course, I don't blame her much, being the way kids around here treated her. I remember the first day she came to this school 'cause it was the day that Raymond came to school for the first time too.

Raymond. Hmphh. The first day in homeroom, he had all the girls flocking around him, guys too. He dressed so sharp and talked fine, too. He told a lot of blown-up stories that were fun to hear. Because he came from a city, we just assumed that he must be "the slickest," if you know what I mean.

In contrast, Malvina, who sat in the last seat in the last row, was totally ignored unless someone made a comment about how she dressed so poorly, or how she just was so odd looking and quiet. It made me kind of sad, watching her get treated like she wasn't a part of any group, like she wasn't even there. But to tell you the truth, I was too taken up with Raymond to really notice her much either.

After a week of school, Raymond already seemed to be the most popular guy in the class, but that's when I started having doubts about "slick" Raymond. He may have been good looking and all, but he was mean! One day before math class, he wrote on the blackboard UGLY MALVINA STINKS for no reason at all, except maybe to get a laugh out of everyone. And being that no one felt like doing math, it kept everyone pretty amused for a while. I knew Malvina must feel awfully bad about that, although she didn't show it.

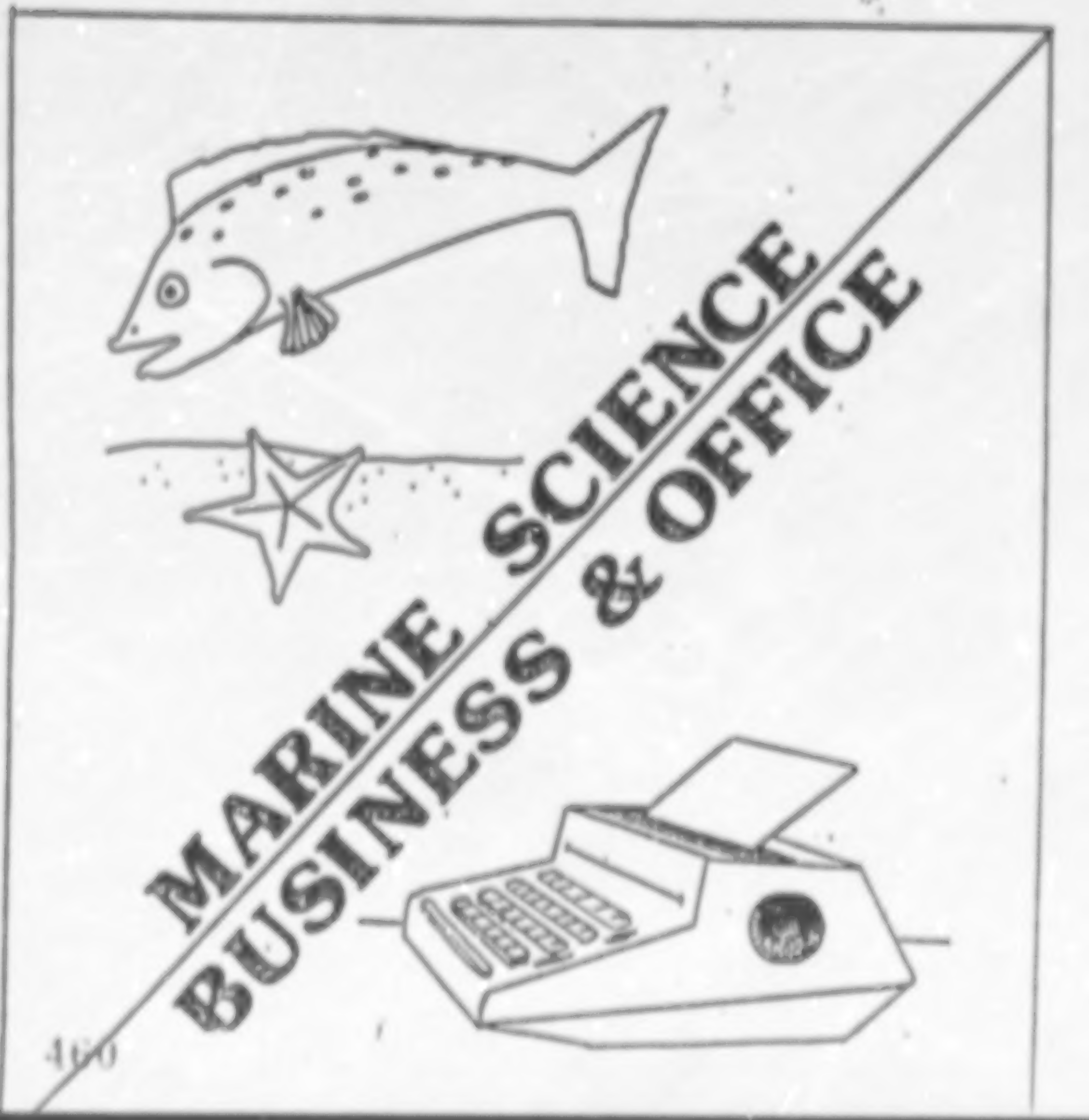
On the bus home that day, she sat all alone, as usual. When we were the last two left on the bus, I moved over and sat by her. She was reading about squirrels. "I rescued a squirrel from a trap yesterday," she said. "Its leg is broken and I want to read to see I do all the right things for it." We had a pleasant time talking about animals, and I showed her a snapshot of my cat, Florence.

Next time I saw Malvina on the bus, she was holding bags of groceries for old Mr. Jenners of the "topple-down house." No doubt about it, I had respect for her, and I liked her because she did a lot of nice things, and because she was so matter-of-fact about the nice things she did, but I must confess, I was never really a friend to her. I wouldn't even be seen with her 'cause ever since Raymond wrote those mean things about her in math class, most of the kids said she was "poison ugly." And although I knew her better than they did, I never went out of my way to defend her, even.

But now that she's gone, I feel awful. No one ever got to know her, but everybody sure seemed to dislike her. And in Raymond's case, people went nuts over him on his first day, and now he's lucky if he has someone to sit with in the study hall. He tells so many mean stories about people that aren't even true.

B7-SA-2

Fitting In and Sticking Out


MARINE SCIENCE
BUSINESS & OFFICE

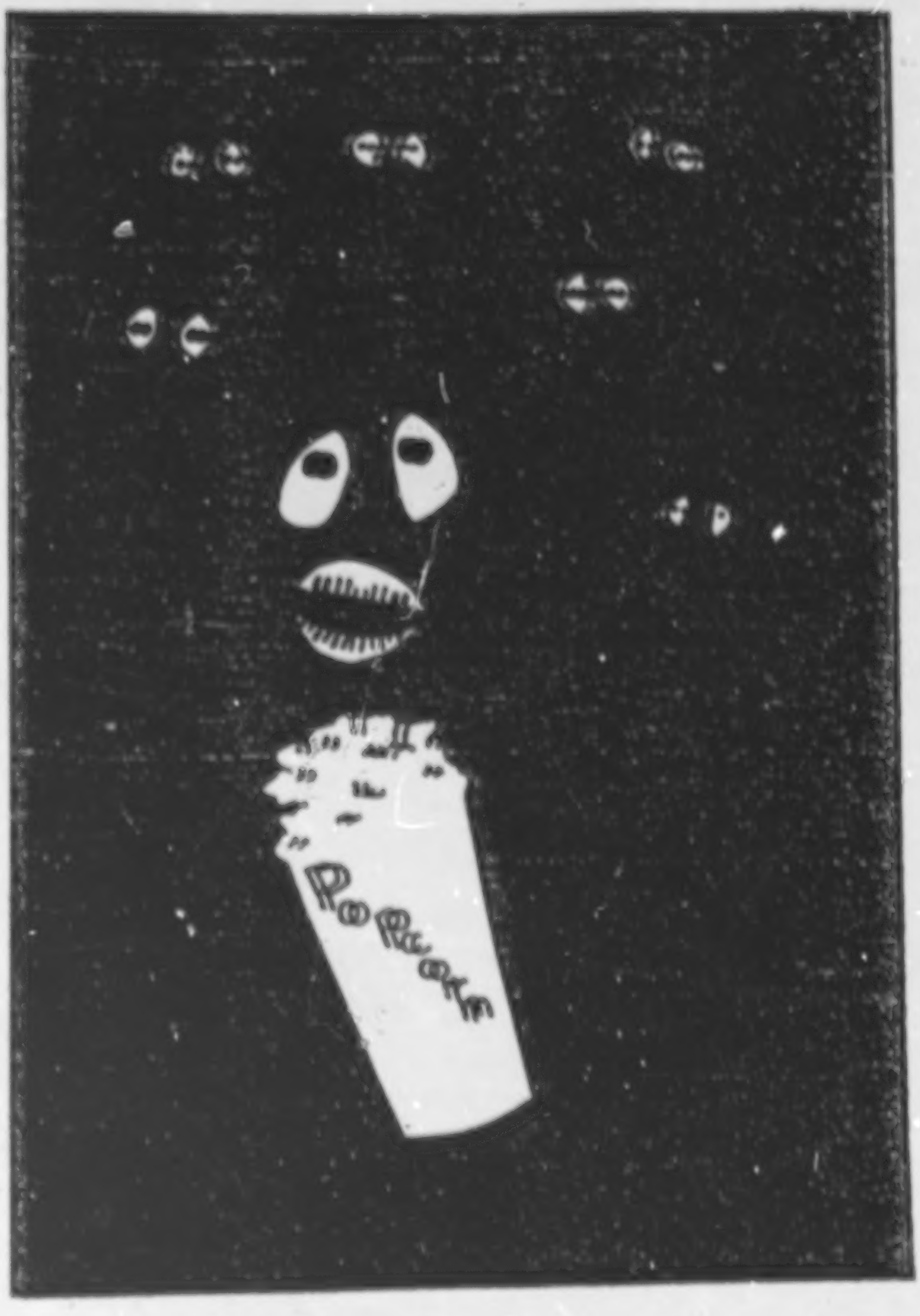
Directions:

Read this story about the feelings of belonging and rejection.

Materials:

Included:
Story
Pictures

Needed:
None



462.

I've always loved movies, ever since I was a little kid. I'd take care of my younger brother every day during the week so that on Saturday I'd have enough money to go to the movies and buy a big box of popcorn. Being at the movies felt like being right at home -- laughing with everybody at the funny parts, crying with everybody over the sad parts, munching popcorn right along with everybody else in the theater. No other place, except home, has ever felt so right for me, like I really belong there.

Another thing I've always loved is to do something, every now and then, a little differently from the way I usually do it. So one week I worked a little extra so I'd have a little more money to spend at the movies on a special treat. The only thing that seemed special to me, though, was two big boxes of popcorn, with extra salt. So that's what I got.

Well, it made me pretty thirsty -- the extra popcorn and extra salt -- so I had to keep getting up and going to the water fountain for a drink. I sat in a seat right on the aisle, though, so that was no problem. It just added to the fun of doing things a little differently from the way I usually did. And I was loving it, belonging there and having a good time along with everybody.

Then, about halfway through the movie and all the way through two big boxes of extra salty popcorn and through about half a gallon's worth of trips to the water fountain, I knew my next move had to be to the bathroom. When I got to the door, I decided to do things a little differently. So I went into the Men's Room instead of the Ladies' Room.

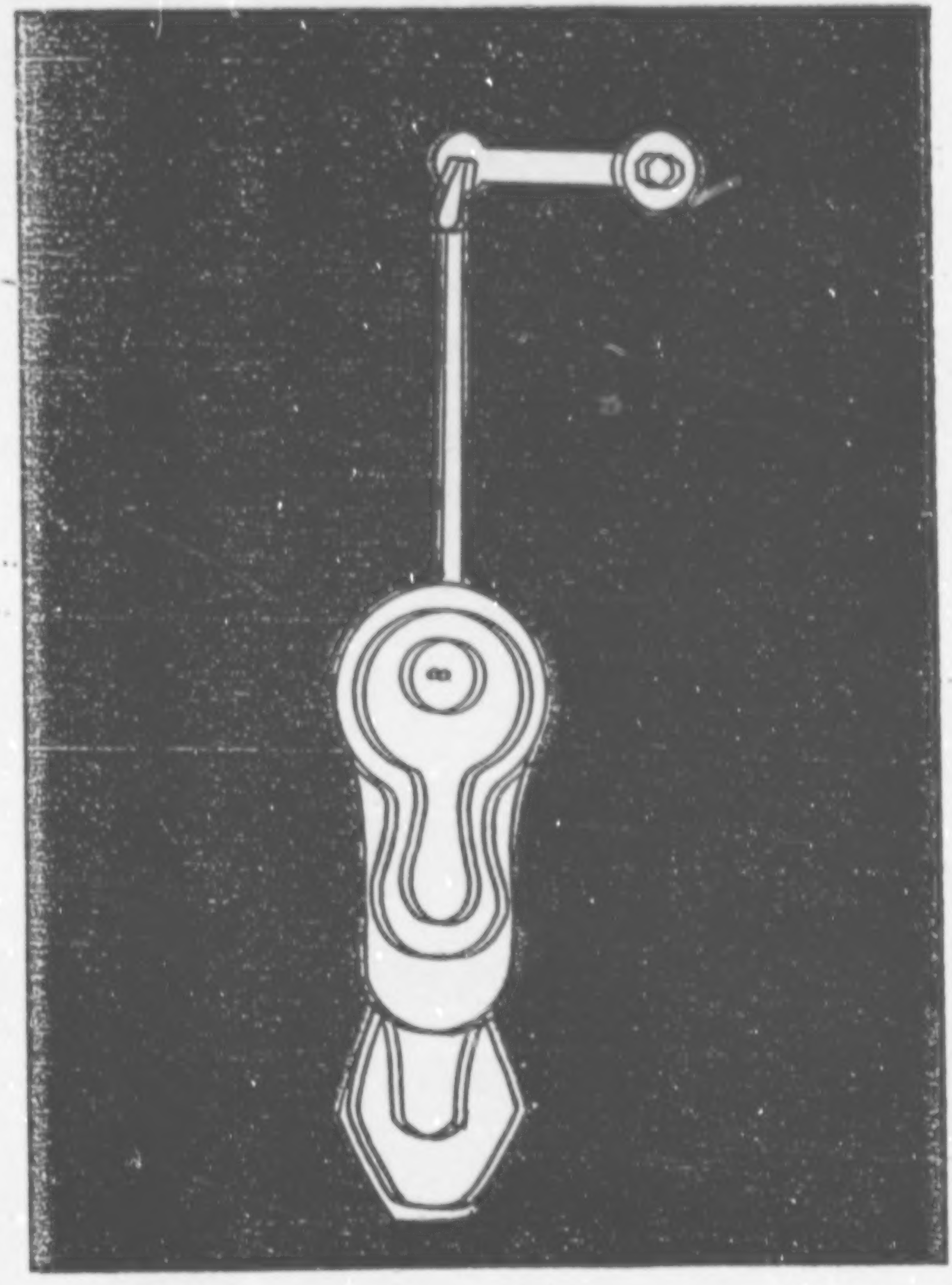
It was very different: there were extra toilets that looked like they were for the shortest people in the world, and there were no doors on the stalls. But that was exciting for me and I tried out one of the toilets for shorties. I was having fun.

Then the door opened, and a man walked in. "Ex-CUSE ME!" he snipped. He walked out and slammed the door.

First I felt embarrassed. I would have crawled out the window and run home, but there was no window, no way out.

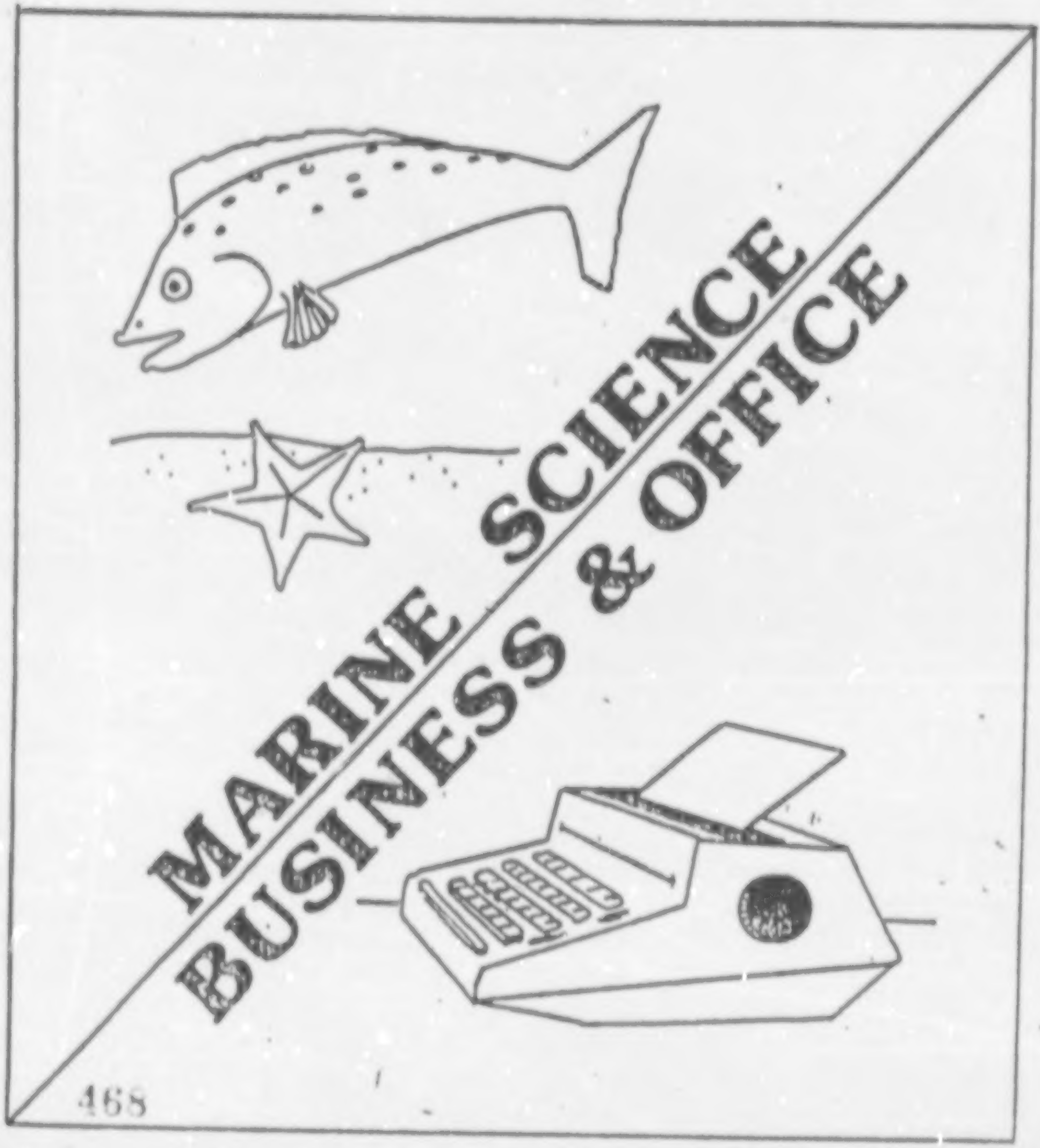
Then I felt real bad because I knew this was a place I wasn't wanted in. Even though I wasn't doing any harm, that I could see, I knew I could get into trouble if I didn't get out of there fast. So I flushed, opened the door, and ran past the man's glaring eyes and out of that movie theater and straight home. And that was the end of it.

I still love the movies and go whenever I get a chance. And I still love doing all kinds of things a little differently, every now and then, and sometimes get myself into places I wish I weren't in. Some people are nice about letting me know, and some people are downright mean about it -- about fifty-fifty, I guess. I figure it's worth it to keep on being me and doing the things I love to do.



B7-SA-3

If Flapjacks Can Fly, So Can I


MARINE SCIENCE
BUSINESS & OFFICE

Directions:

Read the script inside as you listen to the play.

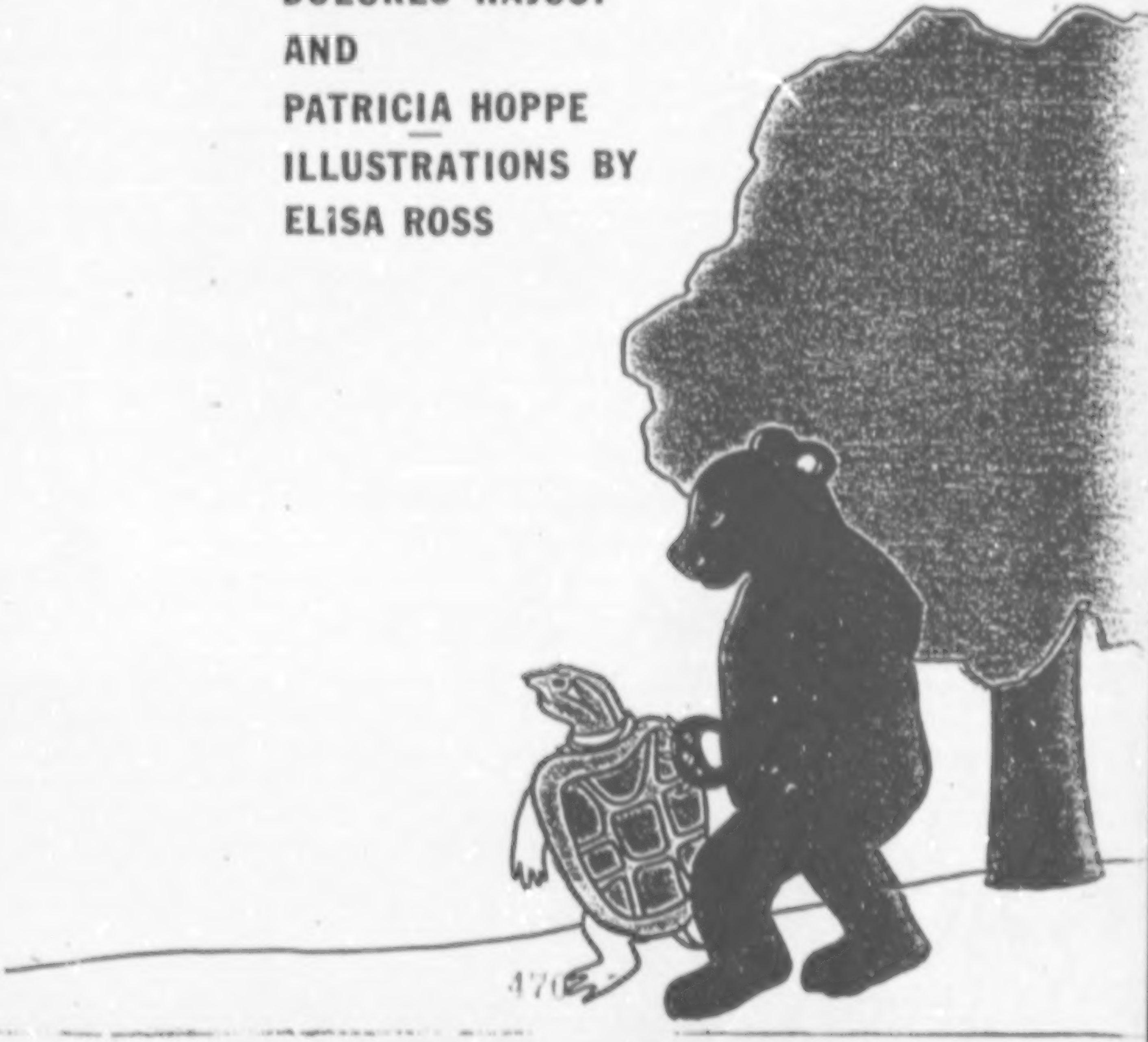
Materials:

Included:
- Script
- Pictures
- Audiotape

Needed:
- Tape recorder

IF FLAPJACKS CAN FLY, SO CAN I

STORY BY
DOLORES HAJOSY
AND
PATRICIA HOPPE
ILLUSTRATIONS BY
ELISA ROSS



If Flapjacks Can Fly, So Can I

Narrator: One sunny afternoon, a robust brown bear named Vaneesha and her friend Toni, a round yellow tortoise, decided to walk to their favorite pond. The pond was cold and green and delightful. There they could take shelter from the sun's heat and perhaps catch a bite to eat. Vaneesha and Toni were both very fond ot the big catfish that lived in the pond. They left home thinking of the lovely lunch they would soon enjoy. But as soon as they had walked just forty paces and turned the very first bend, the sky was filled with hundreds of flying flapjacks.

Flapjack #1: Make way for us!

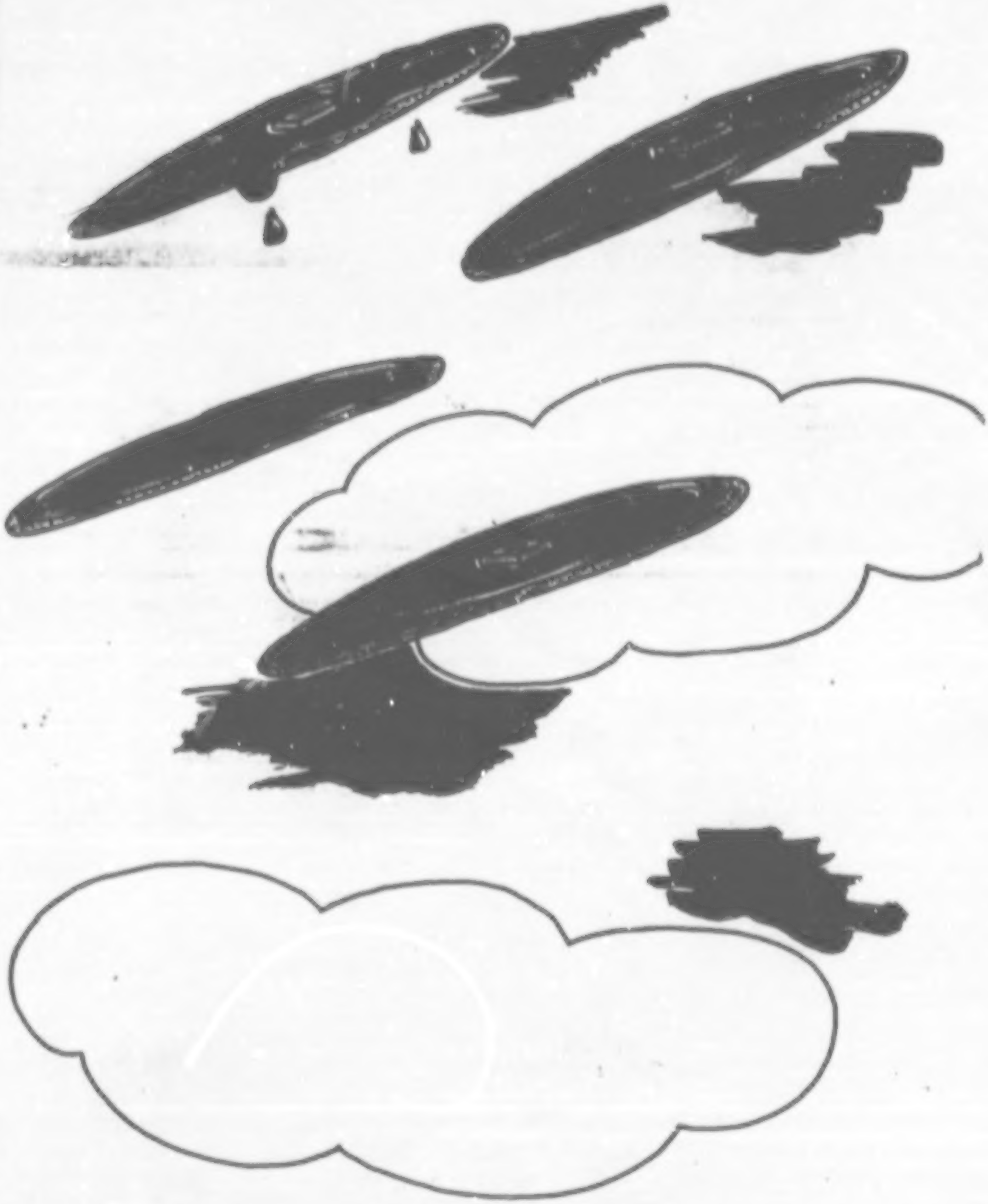
Flapjack #2: We're free at last! Free from kitchens and out in the country.

Flapjack#3: And it's wonderful!

Vaneesha: Well, did you ever see the likes of that?

Toni: No, I can't say that I have, but let's get to the pond. A good dunking is what I need and not a vision of someone else's breakfast flying about. Imagine such nonsense happening so close to home! A disgrace is what it is.

Narrator: Vaneesha didn't think it was a disgrace at all, and was sorry to see the flatcakes fly out of sight. On they walked toward the pond full of the good fush that would certainly please the taste buds of both friends. After they had been fishing for a while, something large and moisy caught Vaneesha's attention. It was a great grey elk drinking at the other side of the pond. Between slurps of cool water that elk was, yes, singing at the top of his fat pink lungs.



Elk: It's a happy elk that drinks this brew,
From the earth and straight to you,
Where the muskrats feed and fish do jump,
But only the camel has a hump.

Narrator: Right then, at that very moment, out of the water rose the very wet, very hairy, lump of a hump of a camel. Well, as you can imagine, Vaneesha could hardly contain herself. After all, singing elks are not quite ordinary, but camels rising out of a pond? Why, everyone knows that camels can't breathe under water. This was all quite strange.

Vaneesha: Toni, Toni, stop eating please and look! Look to see what is rising out of our favorite pool.

Toni: Wait a bit. Can't you see that I am busy eating?

Narrator: Vaneesha didn't want to give up. She knew that this was a sight worth seeing and she didn't want her friend to miss it.

Vaneesha: But you may never see such a sight again in all your life.

Toni: Please stop being silly. I do believe you are over-reacting. First we'll eat a little more, then we'll cool off. Later we can look around.

Narrator: Vaneesha could say no more to her yellow friend. She only kept her eyes glued to the elk who sang and the camel who danced right out of the water, shaking that hairy hump to and fro. The camel led the elk into the forest and they disappeared into the green foliage. Vaneesha was excited and delighted. Toni quietly chewed her dinner.

Vaneesha: Oh me, oh my. This is certainly getting quite interesting.

Toni: Burp. That was refreshing. Would you care to take some sun?

Vaneesha: Sure. (In a whisper.)

Narrator: Secretly, Vaneesha wondered just what kind of adventure the open field might hold. And sure enough, soon after the two companions had stretched out comfortably on the sun-warmed turf, a strange rustling sound grew louder and louder in the tall grasses beside them.

Vaneesha: Whatever could that be?

Toni: Probably nothing but wind.

Vaneesha: Oh no, Toni. Wind doesn't sound like that. I think it's something better than wind. All kinds of special things are happening today.

Toni: Humbug.

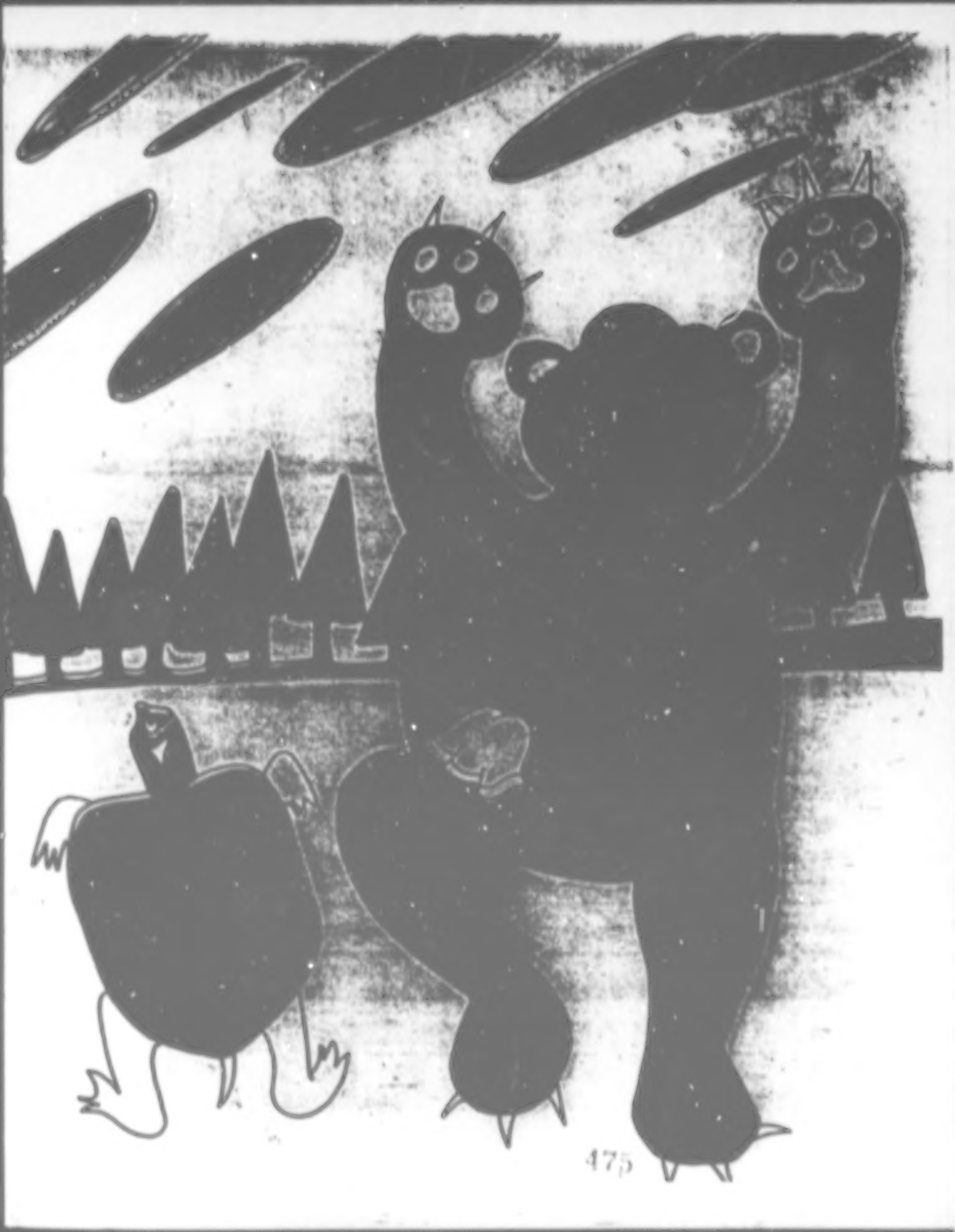
Narrator: Toni's eyes closed until they were just little slits in her green-yellow turtle head. The sun was bit strong for Vaneesha, who was completely covered with thick brown bear fur, so she covered her head with her favorite blue handkerchief. Feeling its shade, she decided to keep watch over the grasses that continued to rustle noisily in the afternoon sun. Soon a voice came singing right toward the two sun bathers.

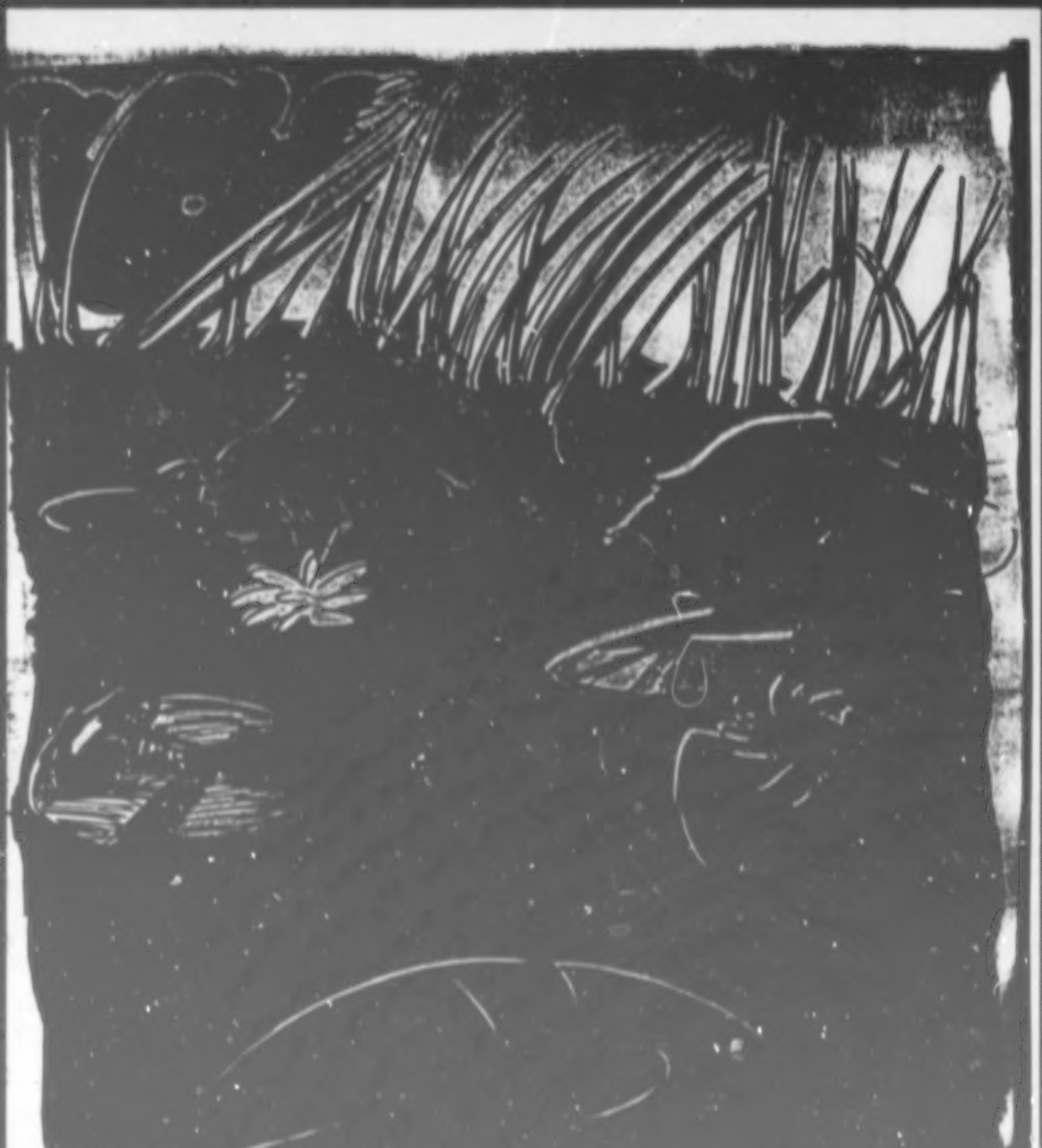
Armadillo: Some folk see and some folk don't
Some folk will and some folk won't.
They say armadillos never do fly,
But sometimes I feel I could touch the sky.
Diddy dum, diddy diddy dumm.

Vaneesha: Toni, Toni, wake up! A singing armadillo who wants to fly!

Narrator: But Vaneesha's turtle companion just opened one eye and said...

Toni: The things you imagine are too silly for me.
Why can't you be quiet.
Let your turtle friend BE.





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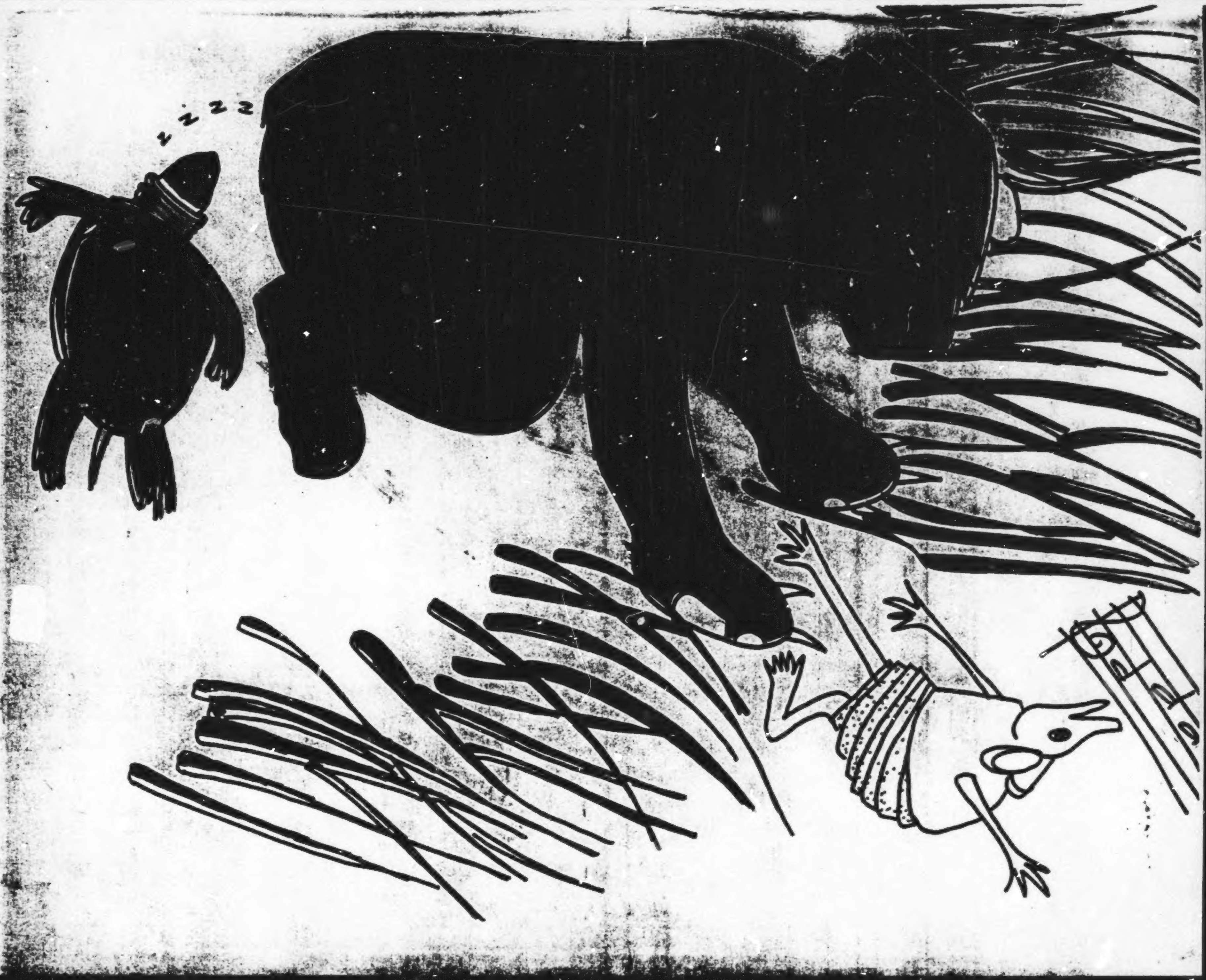
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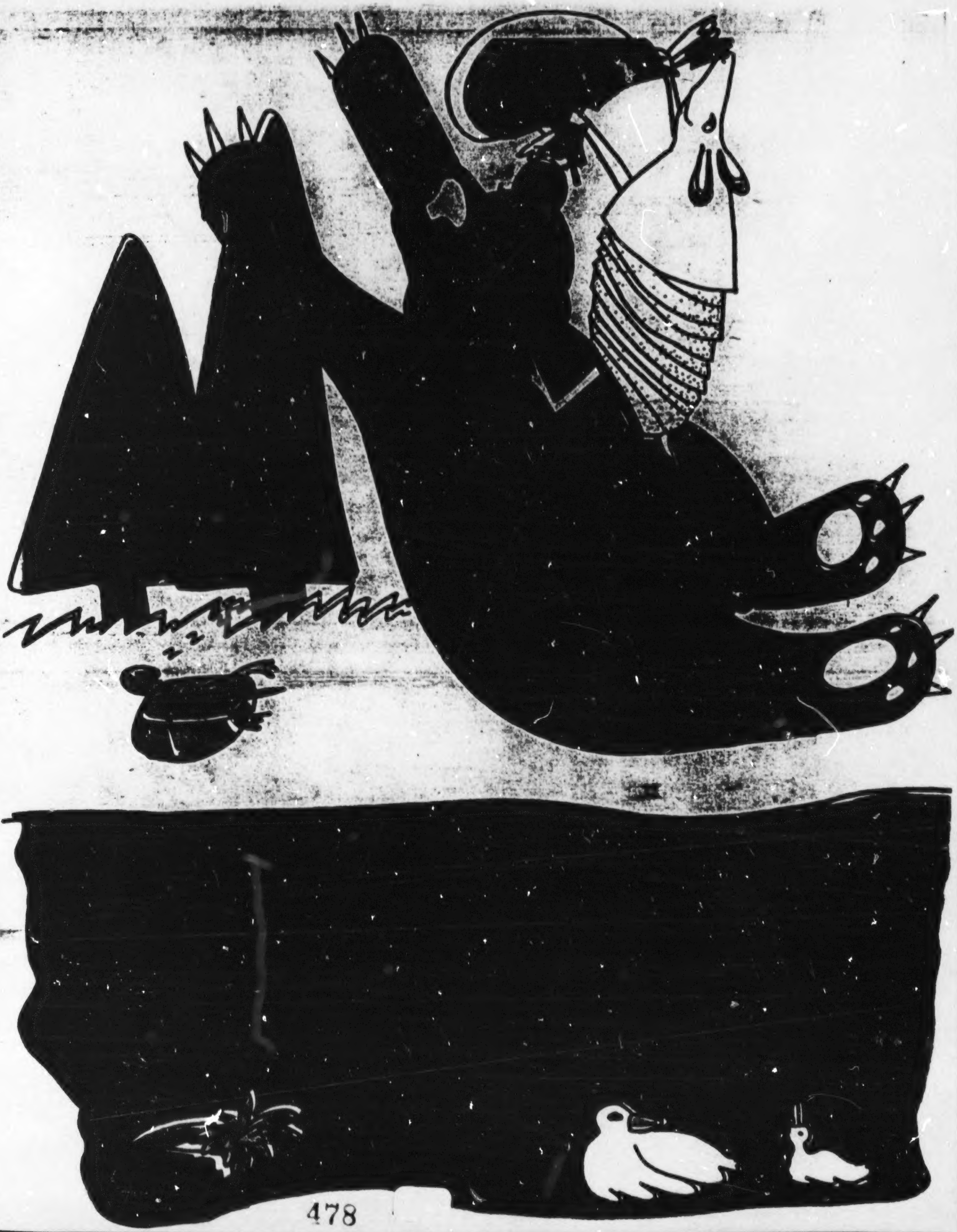


Narrator: Well, Vaneesha was so very curious about the singing armadillo that she decided to approach and talk with him.

Vaneesha: Armadillo, would you like some company? It's been a wonderful day and I'd like some lively fun.

First the griddle cakes flying and singing to be free,
Then the elk sang to a camel that rose from the deep.
And now you say you'd like to fly,
Why, I'd love to join you, oh me, oh my.

What is your name?

Armadillo: Roger is my name.

Narrator: The armadillo blushed at being discovered by such a large beast. But Vaneesha's eyes were so very friendly and curious that Roger lost his fears.

Armadillo: You see, they say armadillos, without any wings, can't fly and shouldn't try to do a number of things.

Vaneesha: Well after all I've seen today I bet you CAN gly, by golly. In fact I wouldn't be surprised if even I could fly. Want to try?

Armadillo: Sure thing, if I grap hold tight, we'll fly till the night.

Narrator: Roger climbed onto Vaneesha's furry back. He grabbed hold and waited for her to be lifted off the ground, but nothing happened. Then Vaneesha remembered to words to a favorite song:

Vaneesha: A little bit of air caught in sturdy cloth,
And up and away we'll fly like a moth.

Narrator: Sure enough, using Vaneesha's favorite blue hankie to catch the wind, the two rose right into the air. They flew above Toni, the turtle, who slept calmly in the grasses. They flew above the forest full of animals and trees. They soared over a family of ducks swimming on a gurgling brook and heard a little duckling cry...

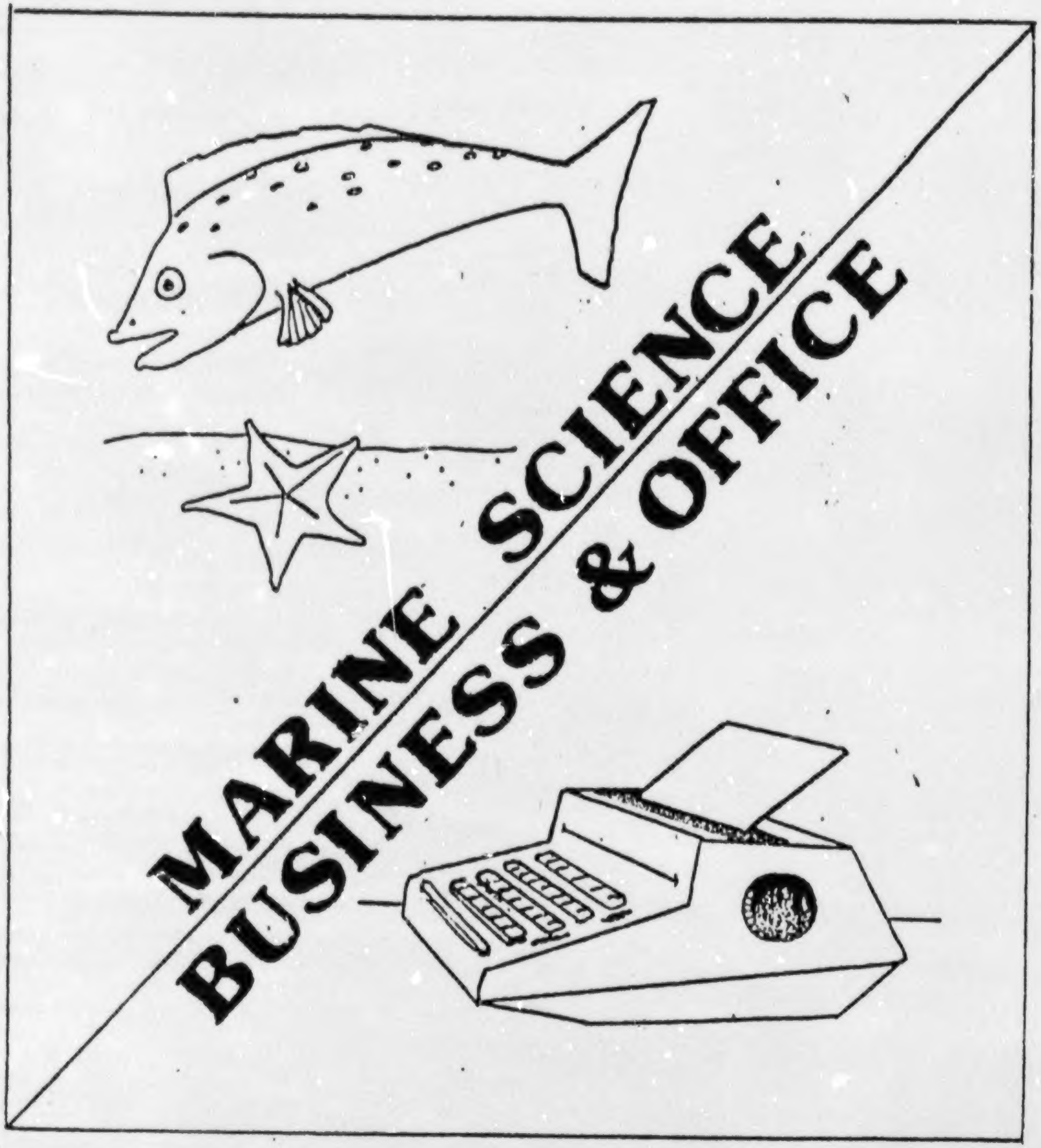
Duckling: Mamma, Mamma, a bear and an armadillo are flying through the air!

Mother Duck: Hush, child, swim and stop looking up. There's no food in the sky for you. What will you be thinking of next?

Narrator: Vaneesha and Roger just smiled at each other. They were flying and feeling so free. They were doing what nobody thought could be.

B7-SA-4

Two Feelings--Tell Two Stories



Directions:

1. Read inside about the feelings of belonging and rejection.
2. Choose a picture-card that shows the feeling of belonging, and tell or write a story about it.
3. Choose a picture-card that shows the feeling of rejection, and tell or write a story about it.

Materials:

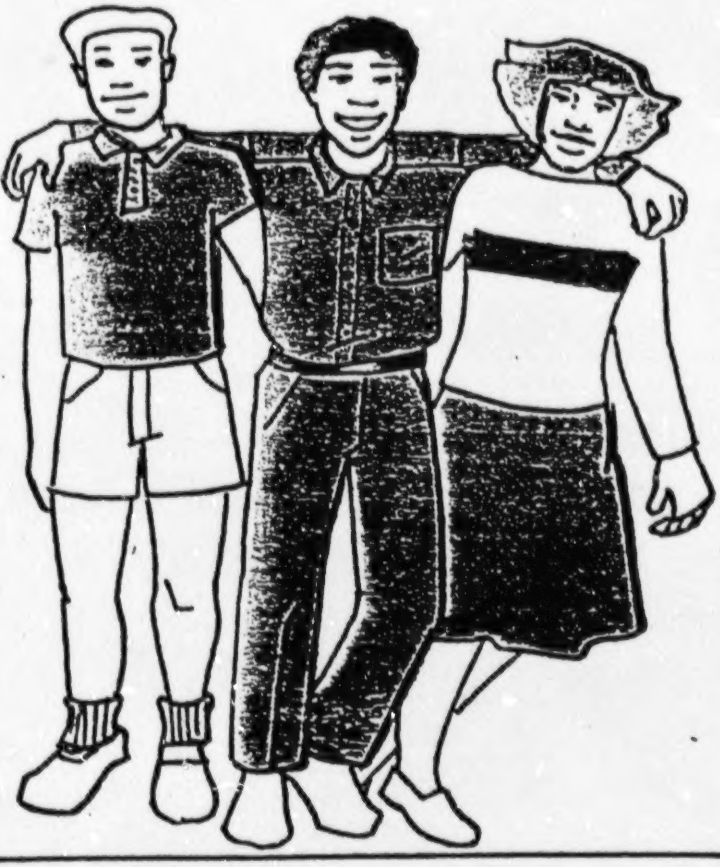
Included:
Text
4 Picture-cards

Needed:
Pencil and paper

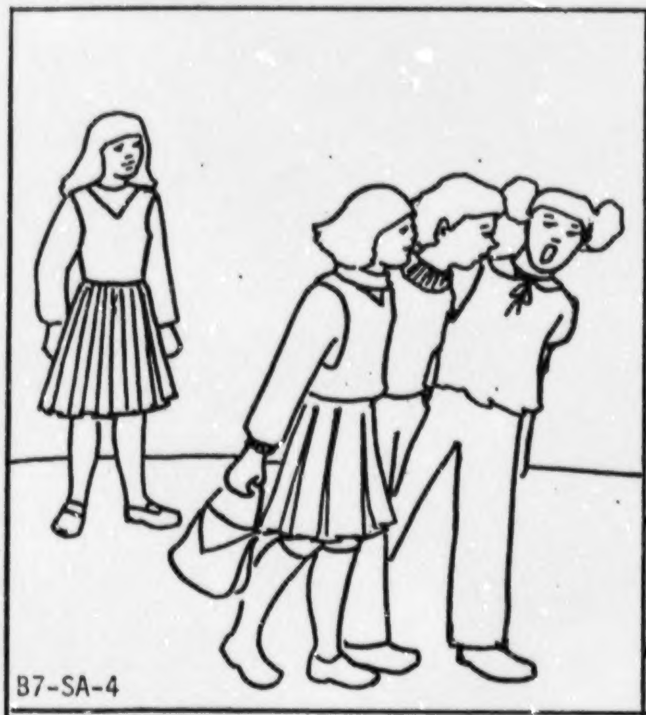
Belonging &

Belonging and rejection
Sometimes it's great to be
times it hurts to be alone
when we've felt fine all b
with others. When we feel
hard to know just how to a
to us, when we'd caught
sure did smile (we nearl
kids asked us to play

When have you felt you belonged?



Belonging is what you feel when
you know you are a part of things.



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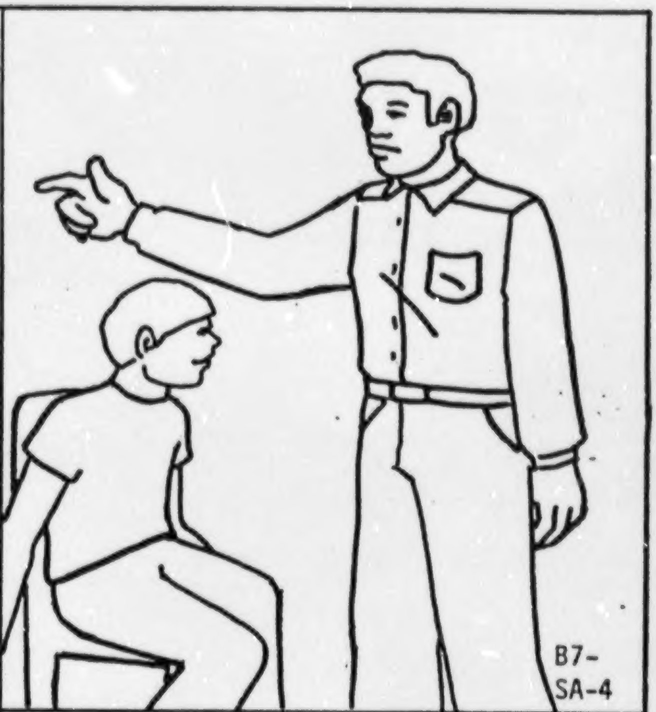

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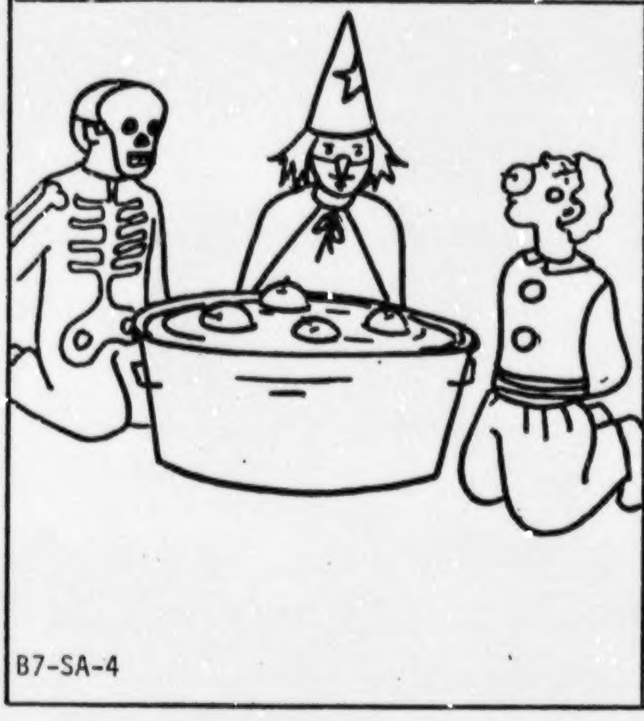

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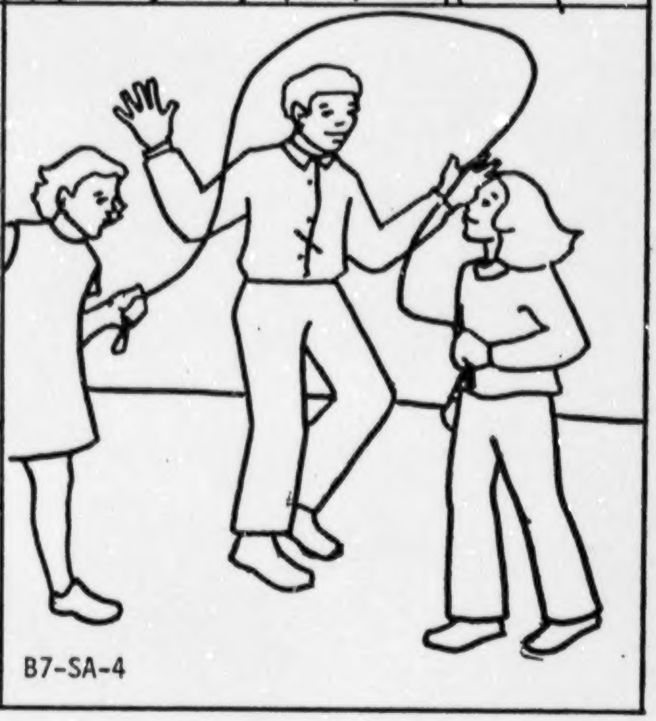

B7-SA-4

✂ cut out 4 cards on vertical and horizontal lines